CCS Technical Documentation
NHM-4 Series Transceivers

Service Software

Issue 1 07/02

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Quick Guide for Phoenix Service SW Installation

Phoenix Installation Steps in Brief

DCT-4 generation Test and Service Software is called “Phoenix”

These are the basic steps to install the Phoenix

- Install the Phoenix Service SW
- Install the Data Package for Phoenix (product specific data and flash update package)
- Manage connection settings (depends on the tools you are using)
- Update FPS-8 SW (if you use FPS-8)
- Activate FPS-8
- Update JBV-1 Docking Station SW (only when needed)

The flash update files are delivered with then Phoenix Data Package so unless you want to use certain version of this package, separate installation package is not needed anymore. If you want to use it, it should be installed after connection management, before FPS-8 update.

Please refer to Service Manual and Technical Bulletins for more information concerning phone model specific service tools and equipment setup.

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Phoenix Service SW

Before Installation

- Check that a Dongle is attached to the parallel port of your computer.
- Download the installation package (e.g. ***nhm7_npe4_npe9_03_55_000.exe***) to your computer (e.g. C:\TEMP)
- Close all other programs
- Run the application file (e.g. ***nhm7_npe4_npe9_03_55_000.exe)*** and follow instructions on the screen
- Administrator rights may be required to be able to install Phoenix depending on the Operating System
- If dongle driver is installed or updated, you need to reboot your PC before the installation can continue.
- If uninstalling or rebooting is needed at any point, you will be prompted by the Install Shield program.

If at any point during installation you get this message, Dongle is not found and installation can´t continue.

Possible reasons may be defective or too old PKD-1Dongle (five digit serial number Dongle when used with FPS-8 Prommer) or that the FLS-4 POS Flash Dongle is defective or power to it is not supplied by external charger.

Check the COM /parallel ports used first! After correcting the problem Installation can be restarted.

Dongle not found
Insert Nokia dongle and click Retry to re-detect the dongle or click Cancel to exit the installation.
Retry
Cancel

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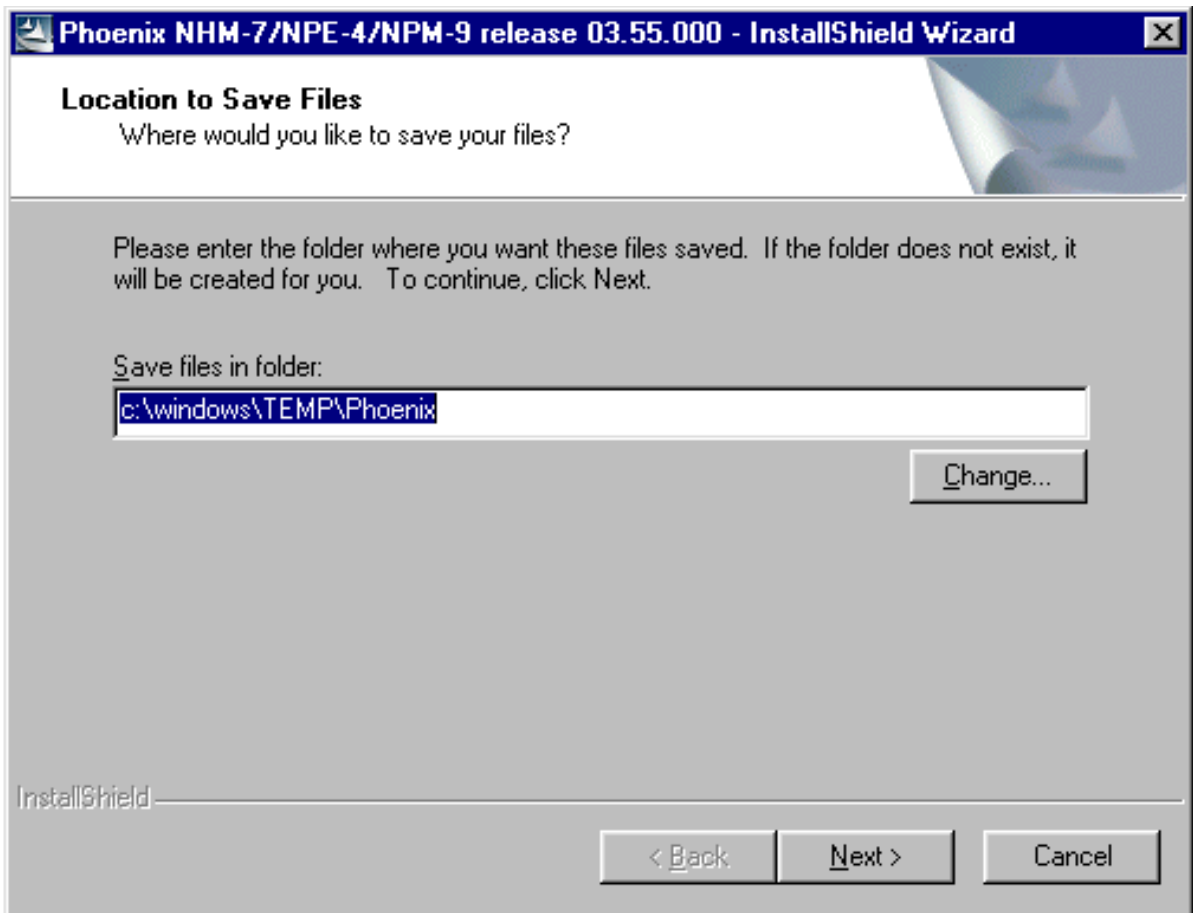
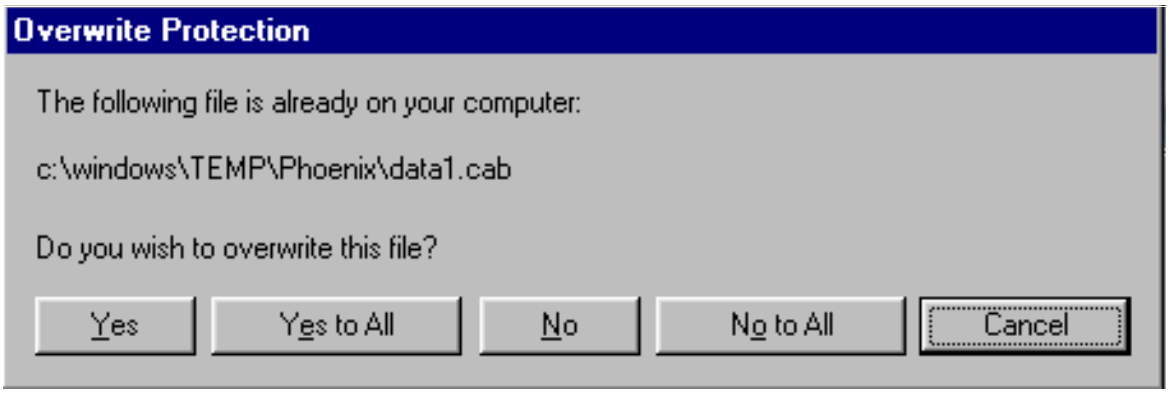
Startup

Run the ***nhm7_npe4_npe9_03_55_000.exe*** to start installation.

When you choose “Next” the files needed for installation will be extracted. Please wait.


Phoenix NHM-7/NPE-4/NPM-9 release 03.55.000 - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
c:\windows\TEMP\Phoenix
Change...
InstallShield
< Back
Next >
Cancel

If the setup files are already extracted (left in the file system from previous installation) following dialog appears. Always click "Yes to All" to overwrite the existing setup files.



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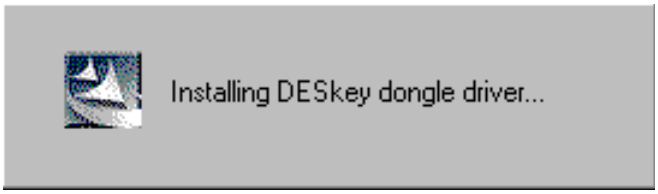
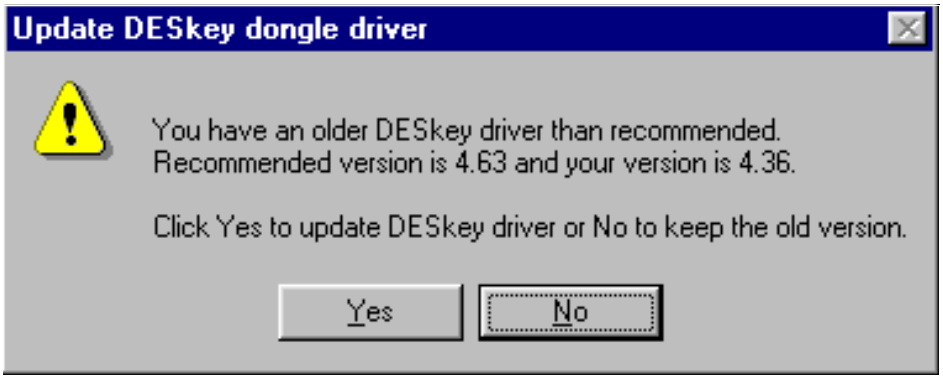
Dongle Driver Installation and Version Check

If there is no previously installed Dongle driver, installation will take place...

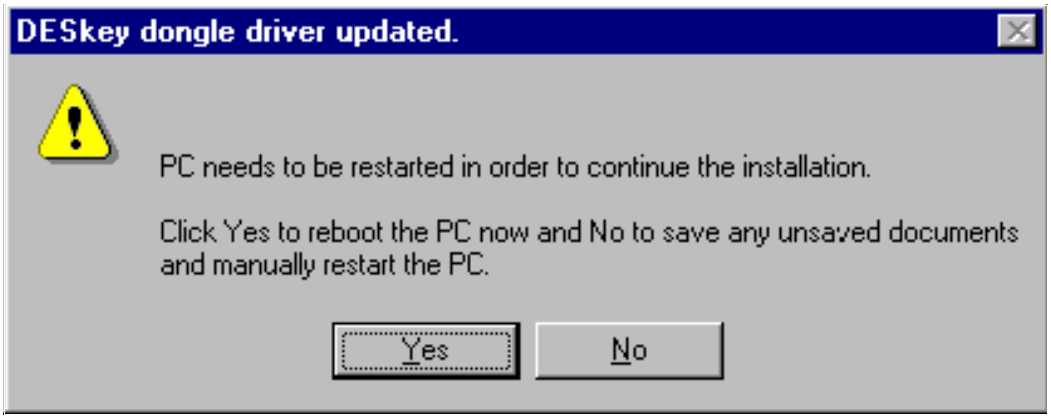


If the Dongle driver is installed and it is older than the latest supported version, the latest version will be installed when you choose “Yes”. The latest version is always included in the latest Phoenix installation package.


Update DESkey dongle driver
You have an older DESkey driver than recommended.
Recommended version is 4.63 and your version is 4.36.
Click Yes to update DESkey driver or No to keep the old version.
Yes
No

PC needs to be rebooted before installation can continue. Click "Yes" to reboot the PC.

Setup is restarted automatically after reboot.


DESkey dongle driver updated.
PC needs to be restarted in order to continue the installation.
Click Yes to reboot the PC now and No to save any unsaved documents and manually restart the PC.
Yes
No

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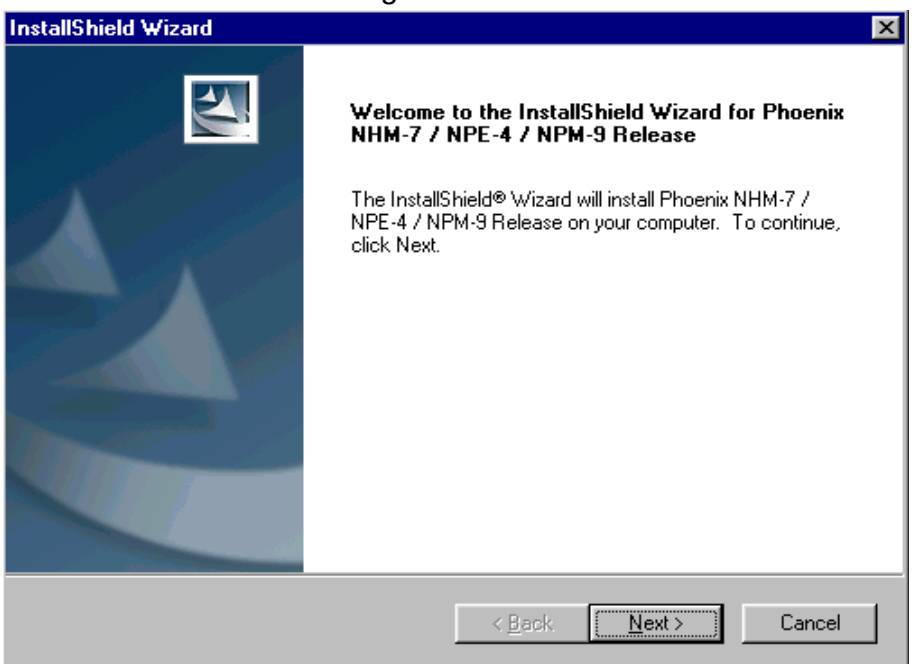
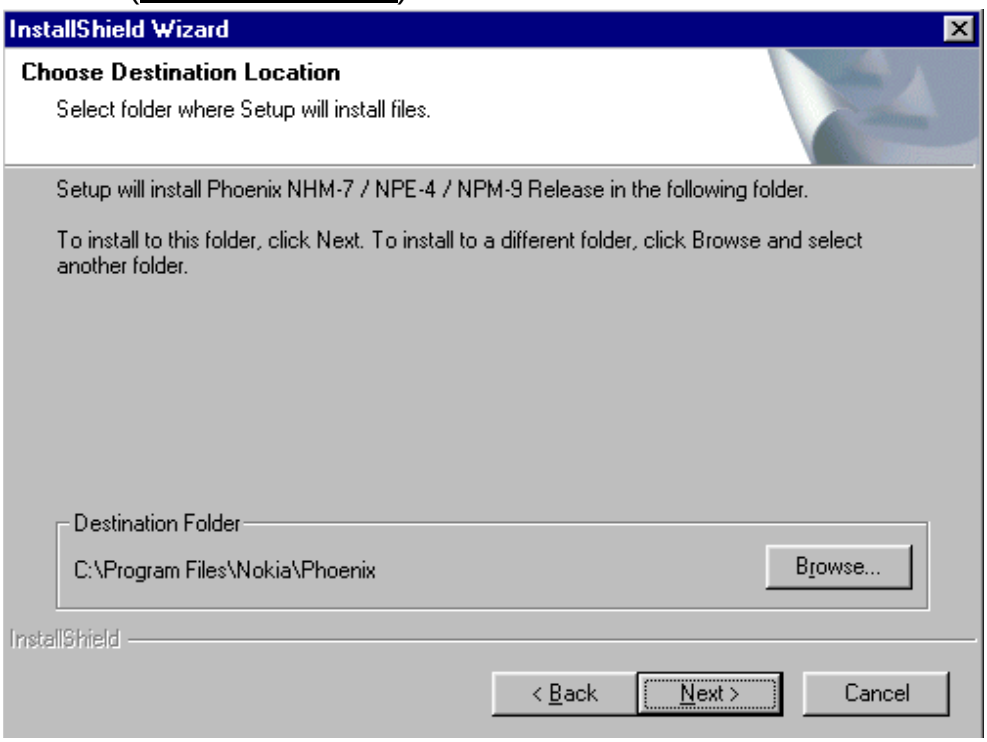
First Time Installation of Phoenix

After Dongle driver installation / update (if needed) installation continues from this step.
Click "Next" in Welcome dialog to continue.


InstallShield Wizard
Welcome to the InstallShield Wizard for Phoenix NHM-7 / NPE-4 / NPM-9 Release
The InstallShield® Wizard will install Phoenix NHM-7 / NPE-4 / NPM-9 Release on your computer. To continue, click Next.
< Back
Next >
Cancel

Choose the destination folder, it is recommended to use the default folder ***C:\ProgramFiles\Nokia\Phoenix***.

Choose “Next” to continue. You may choose another location by selecting “Browse” (not recommended)


InstallShield Wizard
Choose Destination Location
Select folder where Setup will install files.
Setup will install Phoenix NHM-7 / NPE-4 / NPM-9 Release in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\Nokia\Phoenix
Browse...
InstallShield
< Back
Next >
Cancel

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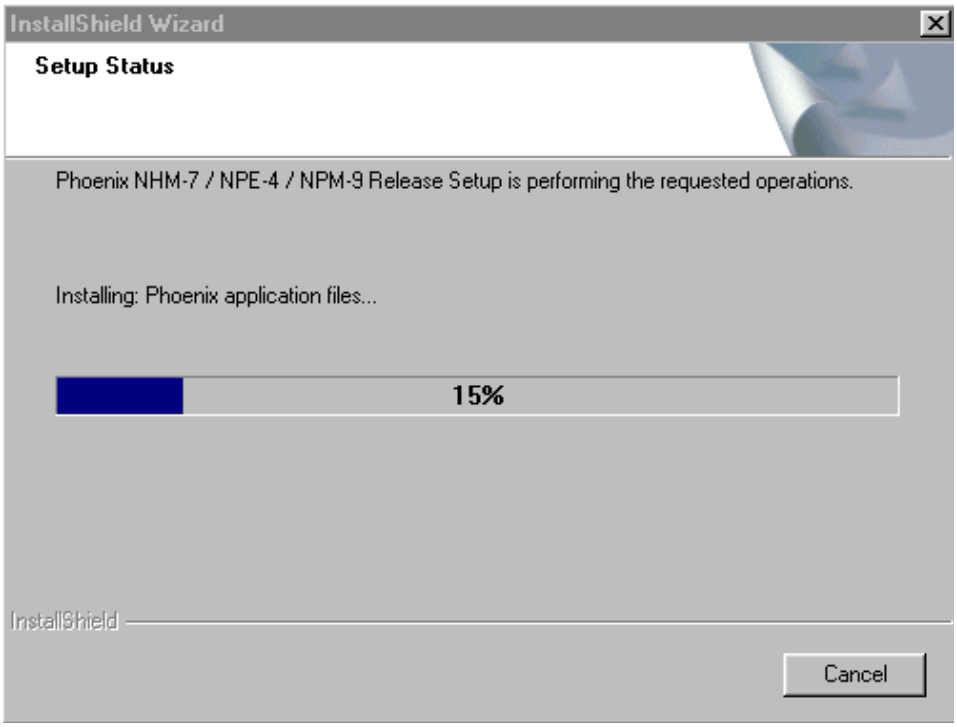
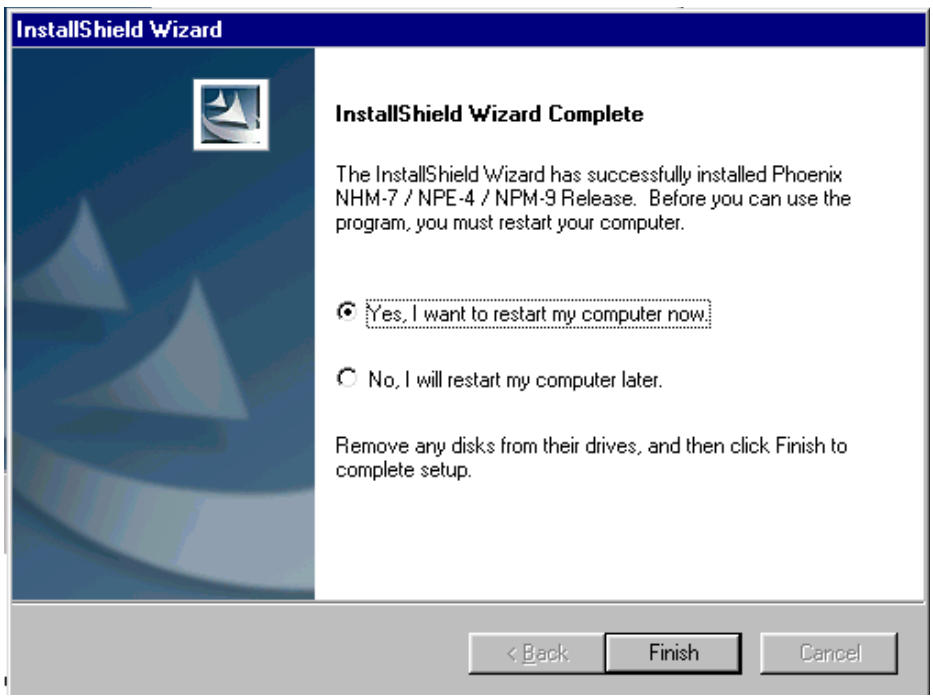
Setup copies the components.please wait. Progress of the setup is shown. Please wait…



If you need to reboot the PC, the Install Shield Wizard will tell you about it.

Select "Yes..." to reboot the PC immediately and "No..." to reboot the PC manually.

Note that Phoenix doesn't work, if components are not registered. Click "Finish" to continue.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Phoenix NHM-7 / NPE-4 / NPM-9 Release. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

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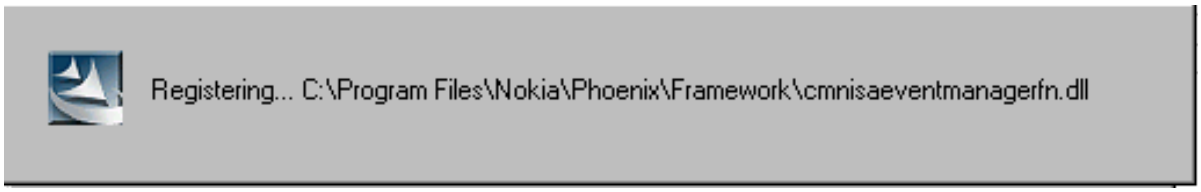
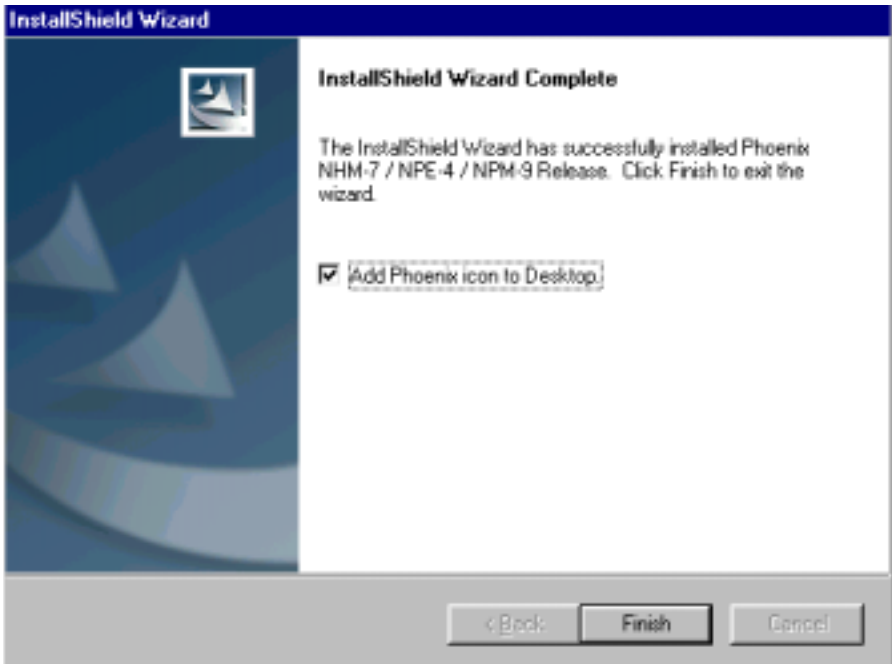
After the reboot components are registered and Phoenix is ready for use.

If reboot is not needed components are registered after copying them.



If reboot of the computer is not needed, this view will be shown instead.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Phoenix NHM-7 / NPE-4 / NPM-9 Release. Click Finish to exit the wizard.
Add Phoenix icon to Desktop.
< Back
Finish
Cancel

Click "Finish" to exit the setup. Phoenix is now ready for use.

Now the installation of Phoenix Service SW is ready and it can be used after:

- **Installing Phone model specific Phone Data Package for Phoenix**
- **Configuring the connections**
- **Updating the Flash Update Package files used with FPS-8* and FLS-4* tools**

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Update Installation of Phoenix

If you already have the Phoenix Service SW installed on your computer, sooner or later there will be need to update it when new versions are released.

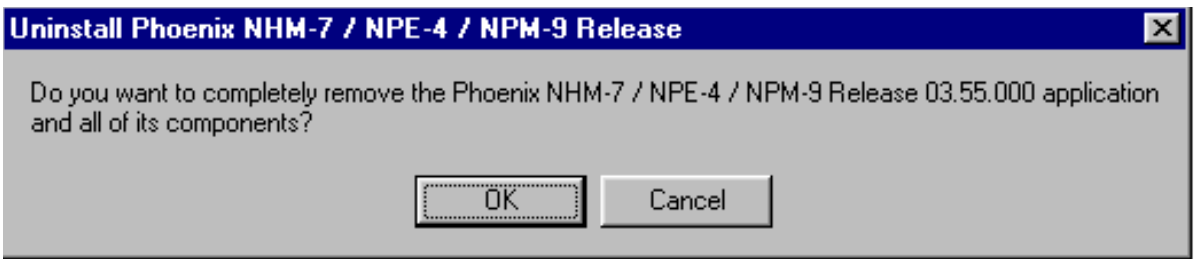
Please note that very often the Phoenix Service SW and the Phone Specific Data Package for Phoenix come in pairs, meaning that certain version of Phoenix can only be used with certain version of Data Package. Always use the latest available versions of both. Instructions can be found in phone model specific Technical Bulletins.

To update the Phoenix you need to take exactly the same steps as when installing it for the first time.

- Download the installation package to your computer hard disk
- Close all other programs
- Run the application file (e.g. nhm7_npe4_npe9_03_55_000.exe)
- Dongle driver version will be checked and if need be, updated
- After reboot installation starts automatically
- Newer version of Phoenix will be installed

When you update the Phoenix from old to new version (e.g. update from 3.40 to 3.55), the update will take place automatically without uninstallation

If you try update the Phoenix with the same version that you already have (e.g. 3.55 to 3.55) you are asked if you want to uninstall the version of Phoenix you have on your PC. Answer “OK” to uninstall Phoenix, “Cancel” if you don’t want to uninstall.


Uninstall Phoenix NHM-7 / NPE-4 / NPM-9 Release
Do you want to completely remove the Phoenix NHM-7 / NPE-4 / NPM-9 Release 03.55.000 application and all of its components?
OK
Cancel

If you try to install an older version (e.g. downgrade from 3.55 to 3.40) installation will be interrupted.

Always follow the instructions on the screen.

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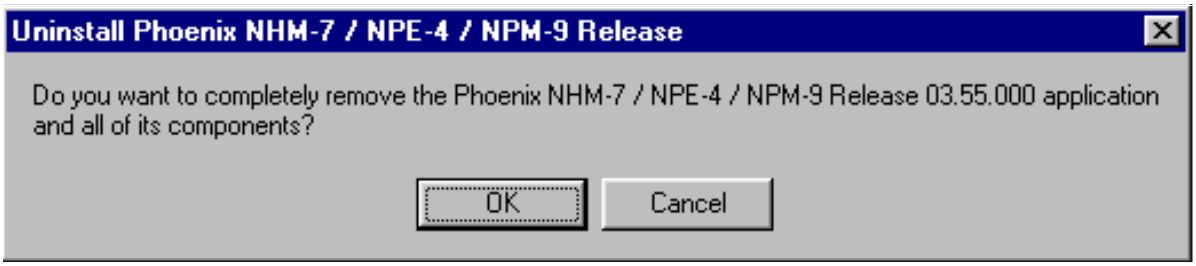
How to Uninstall Phoenix

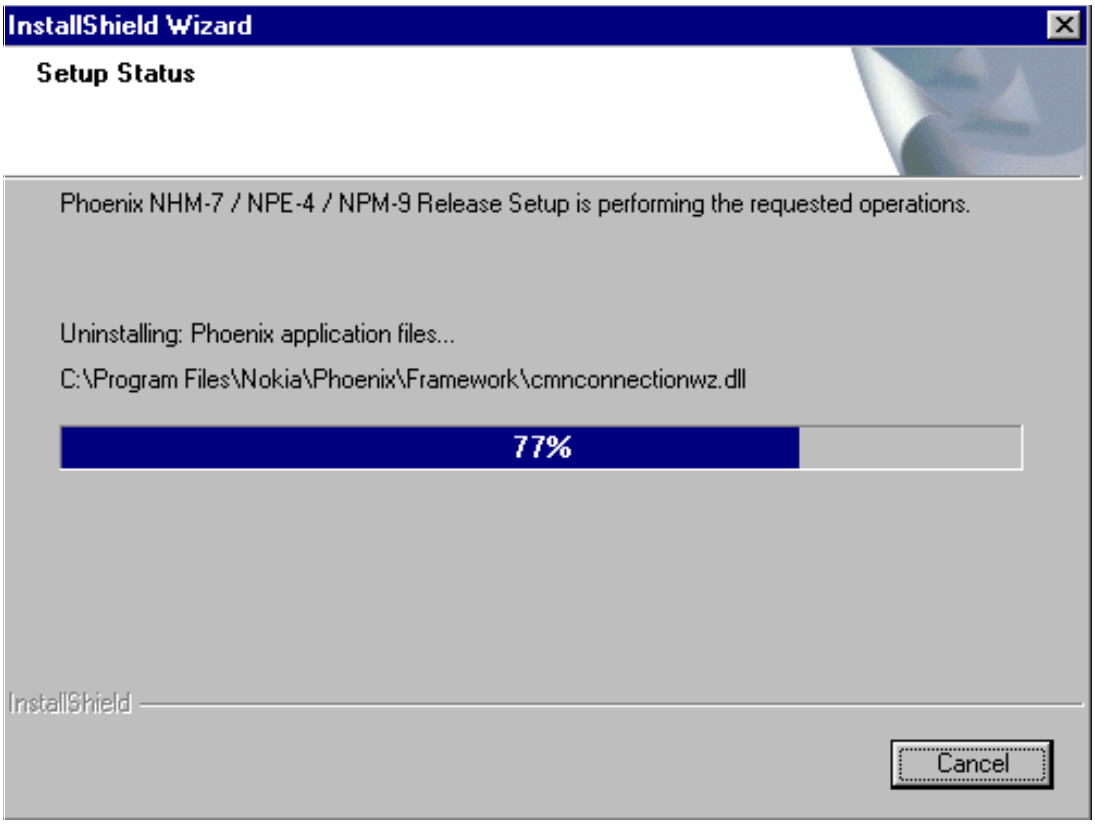
Uninstallation can be done manually from Windows Control Panel - Add / Remove Programs.

Choose “Phoenix NHM-7 / NPE-4 / NPE-9 Release” click "Add/Remove".

Choose “OK” to uninstall


Uninstall Phoenix NHM-7 / NPE-4 / NPM-9 Release
Do you want to completely remove the Phoenix NHM-7 / NPE-4 / NPM-9 Release 03.55.000 application and all of its components?
OK
Cancel

Progress of the uninstallation is shown.



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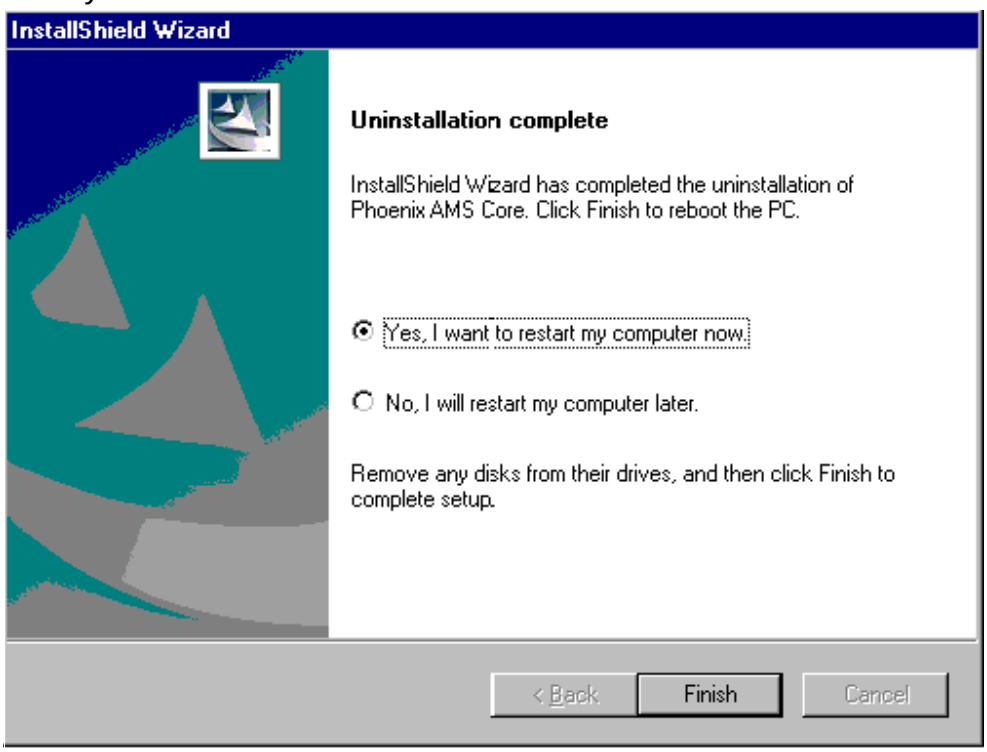
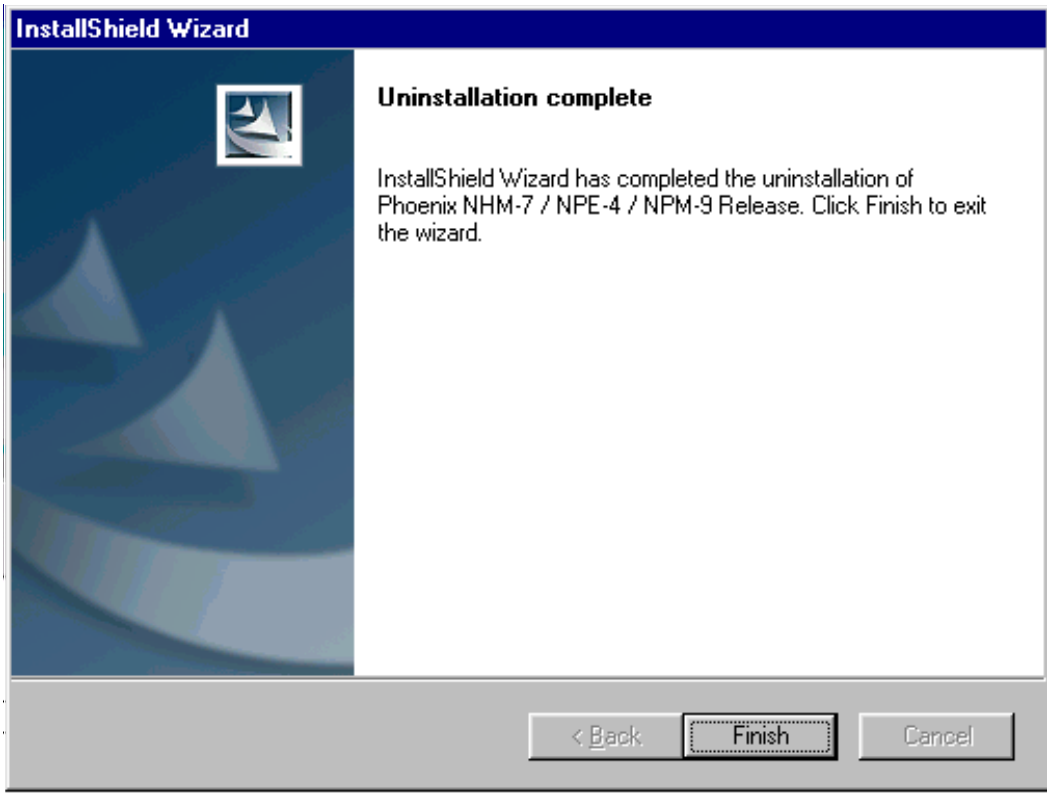
You may have to reboot the PC after uninstallation.


InstallShield Wizard
Uninstallation complete
InstallShield Wizard has completed the uninstallation of Phoenix AMS Core. Click Finish to reboot the PC.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

If restarting is not needed, the following dialog will appear:


InstallShield Wizard
Uninstallation complete
InstallShield Wizard has completed the uninstallation of Phoenix NHM-7 / NPE-4 / NPM-9 Release. Click Finish to exit the wizard.
< Back
Finish
Cancel

Note! If you have different product packages installed, components are uninstalled only if they are not included in other product packages.

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Data Package for Phoenix (Product Specific)

Before installation

Product Data Package contains all product specific data to make the Phoenix Service Software and tools usable with a certain phone model.

It also includes the latest version of flash update package for FLS-4* and FPS-8*

- Check that the Dongle is attached to the parallel port of your computer.
- Install Phoenix Service SW
- Download the installation package (e.g. **nhm-7_dp_v_6.00.exe**) to your computer (e.g. C:\TEMP)
- Close all other programs
- Run the application file (e.g. **nhm-7_dp_v_6.00.exe**) and follow instructions on the screen

If you already have the Phoenix Service SW installed on your computer, sooner or later there will be need to update it when new versions are released.

Please note that very often the Phoenix Service SW and the Phone Specific Data Package for Phoenix come in pairs, meaning that certain version of Phoenix can only be used with certain version of Data Package. Always use the latest available versions of both. Instructions can be found in phone model specific Technical Bulletins.

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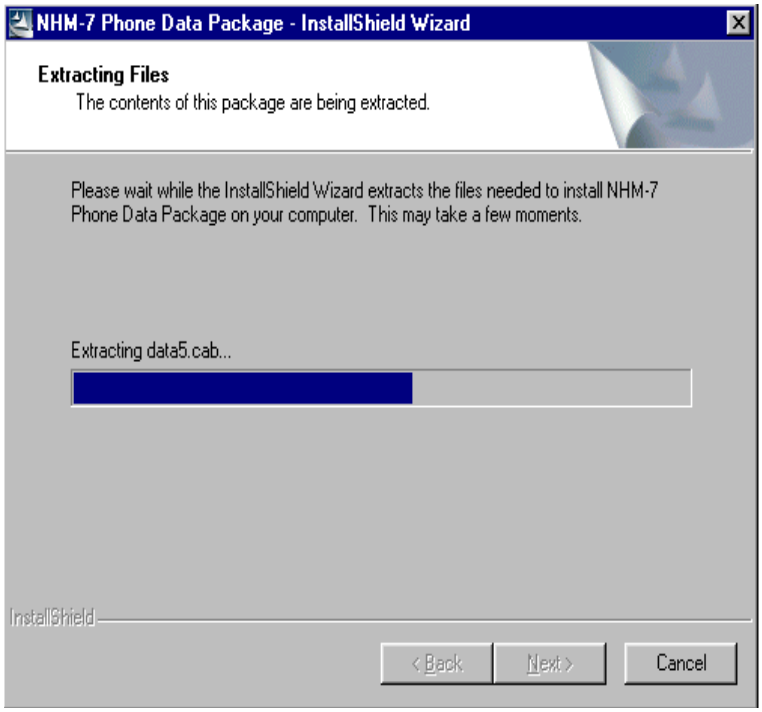
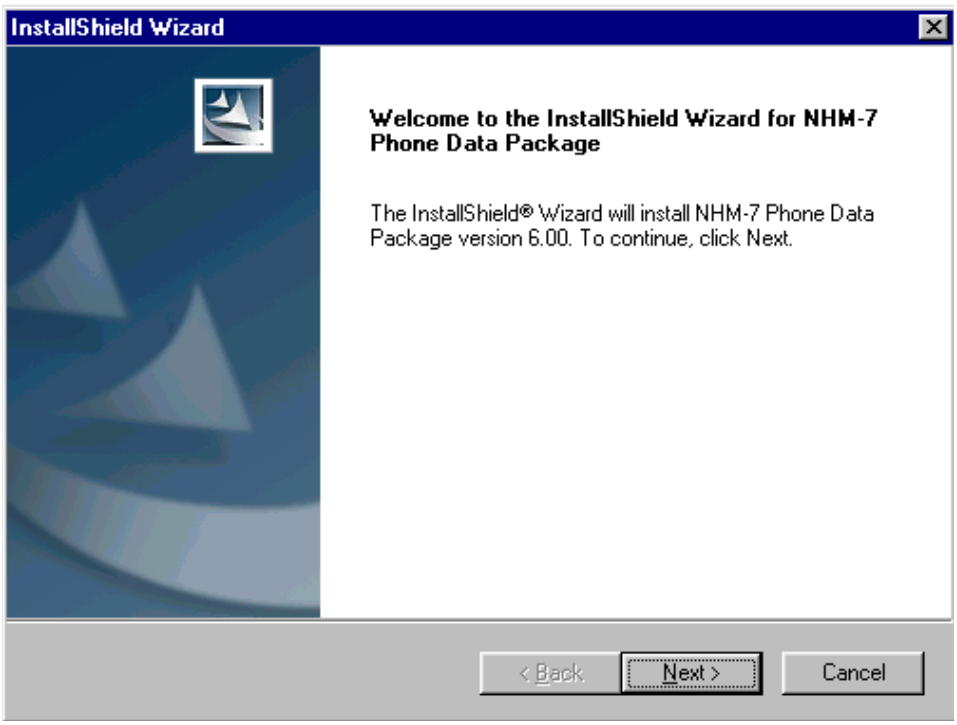
Installation of Phoenix Data Package (Product Specific)

Run the ***nhm-7_dp_v_6.00.exe*** to start installation.

When you choose “Next” the files needed for installation will be extracted. Please wait…


NHM-7 Phone Data Package - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install NHM-7 Phone Data Package on your computer. This may take a few moments.
Extracting data5.cab...
InstallShield
< Back
Next >
Cancel

Choose “Next” to continue.


InstallShield Wizard
Welcome to the InstallShield Wizard for NHM-7 Phone Data Package
The InstallShield® Wizard will install NHM-7 Phone Data Package version 6.00. To continue, click Next.
< Back
Next >
Cancel

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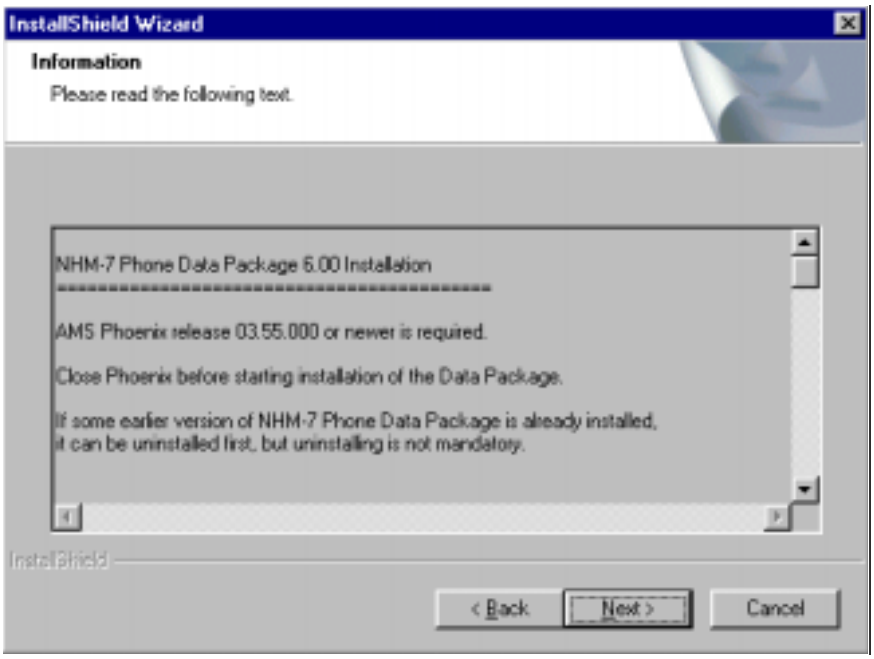
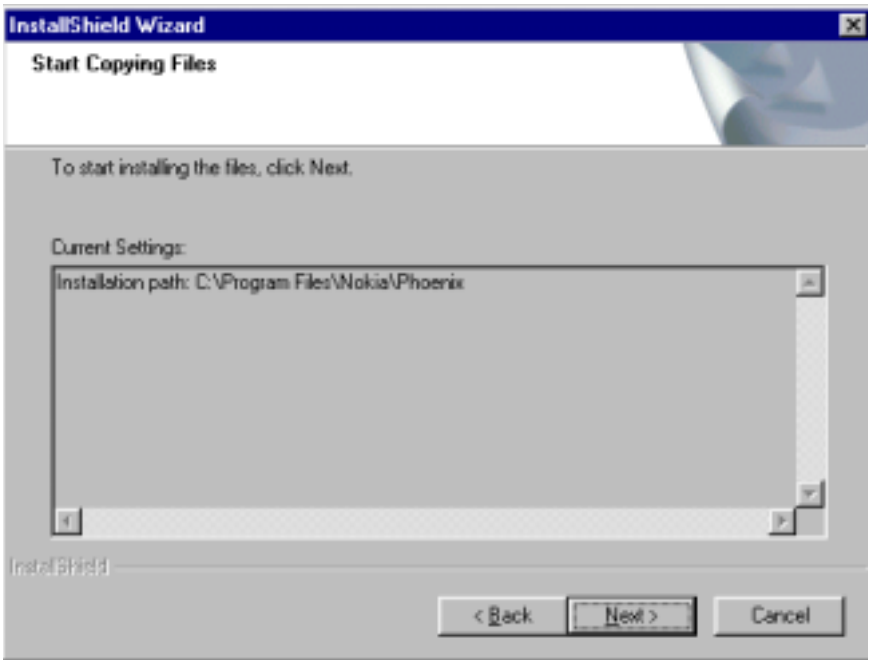
From this view you can see the contents of the Data Package. **Read the text carefully**. There should be information about the Phoenix version needed with this data package. Choose “Next”.


InstallShield Wizard
Information
Please read the following text.
NHM-7 Phone Data Package 6.00 Installation
AMS Phoenix release 03.55.000 or newer is required.
Close Phoenix before starting installation of the Data Package.
If some earlier version of NHM-7 Phone Data Package is already installed,
it can be uninstalled first, but uninstalling is not mandatory.
InstallShield
< Back
Next >
Cancel

Confirm location and choose “Next” to continue.

Install shield checks where the Phoenix application is installed and the directory is shown. Choose “Next” to continue.



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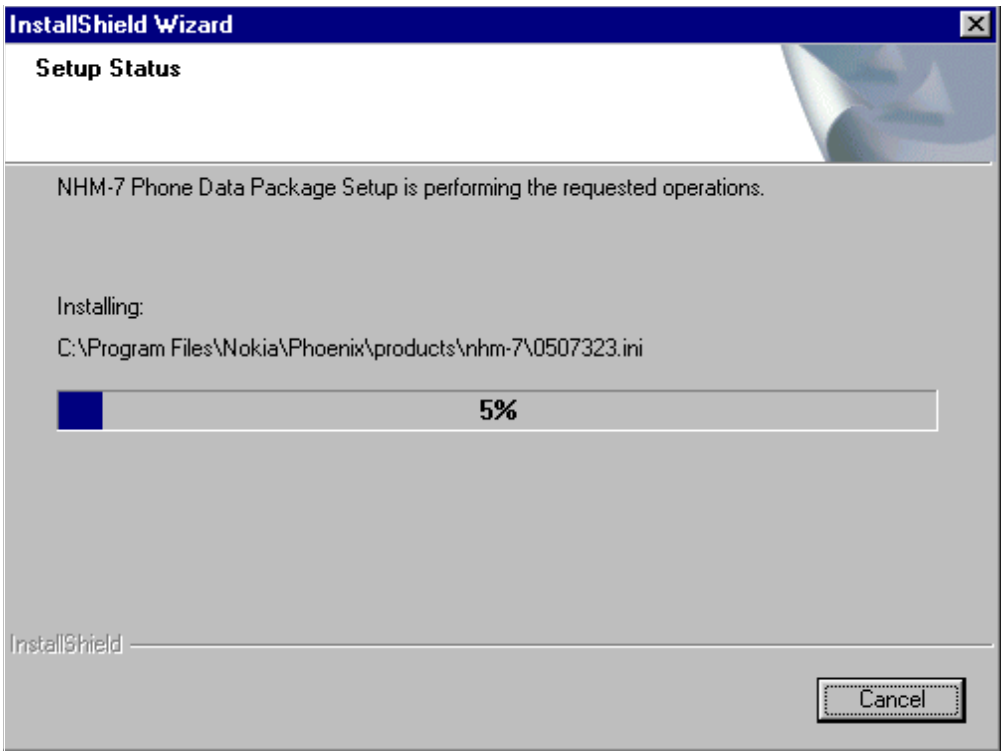
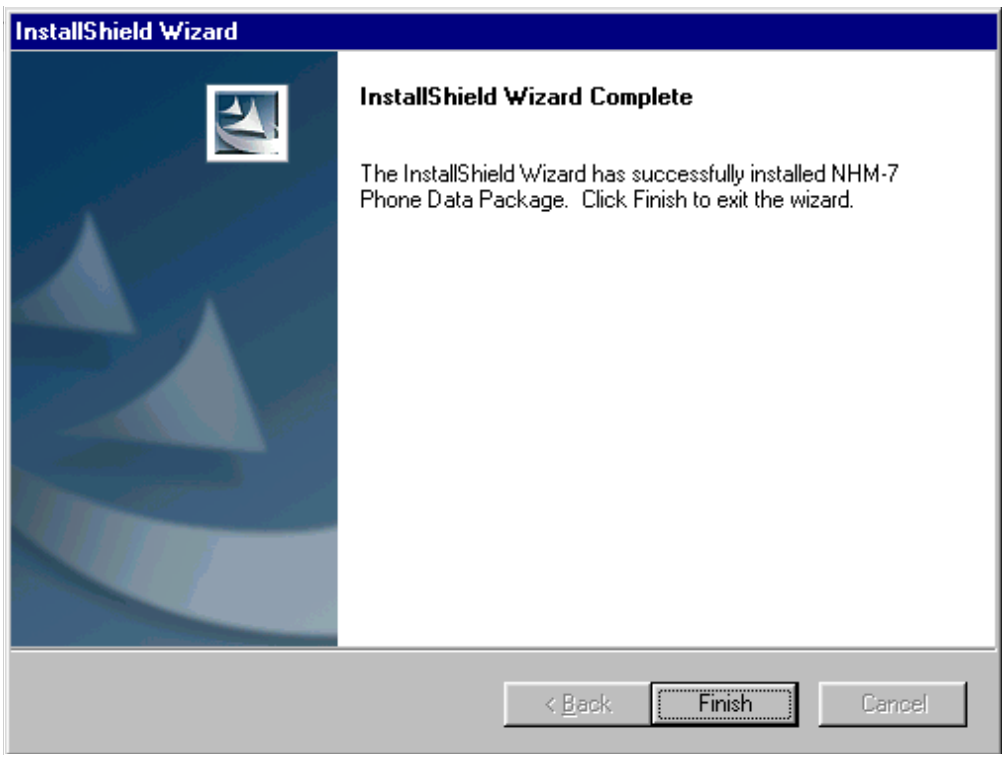
Phone model specific files will be installed... please wait.



Choose “Finish” to complete installation.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed NHM-7 Phone Data Package. Click Finish to exit the wizard.
< Back
Finish
Cancel

You now have all phone model specific files installed in your Phoenix Service SW.

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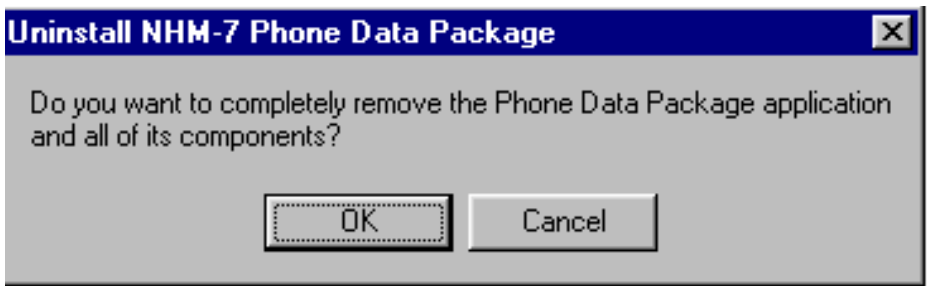
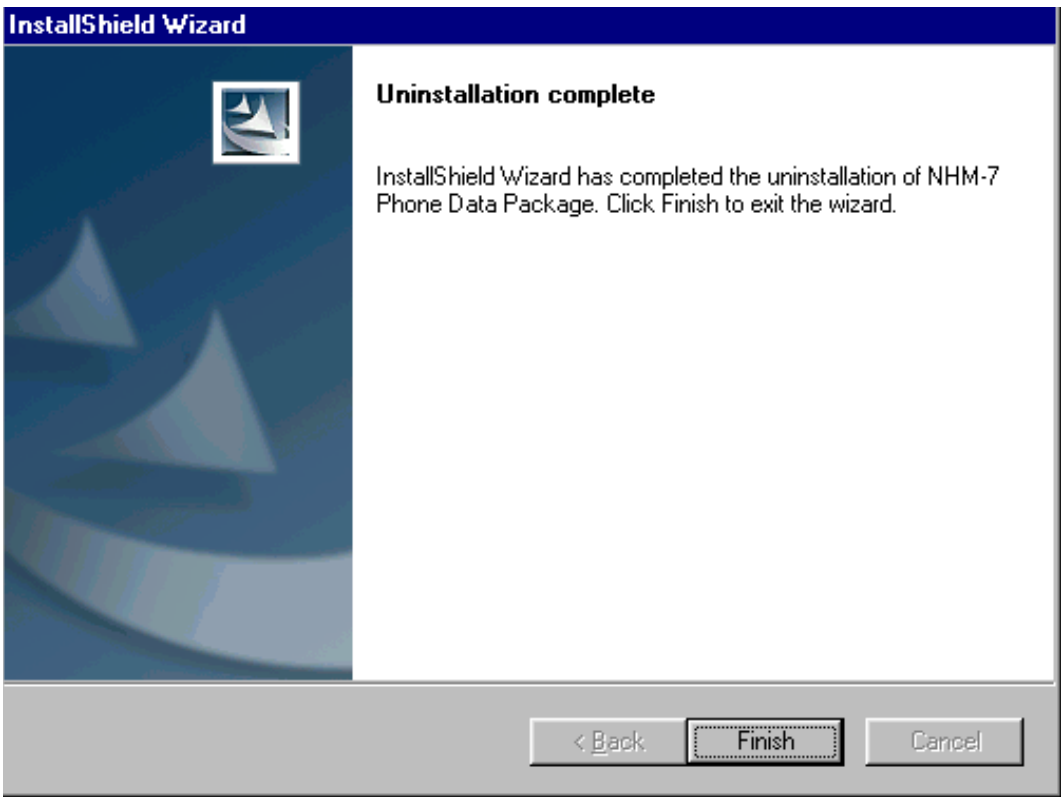
How to Uninstall Data Package

Uninstallation can also be done manually from Windows Control Panel / Add / Remove Programs/ “NHM-7 Phone Data Package”.

If you try to install the same version of Phoenix Data Package that you already have, you are asked if you want to uninstall the version you have on your PC. Answer “OK” to uninstall, “Cancel” if you don’t want to uninstall. Older versions of data packages do not need to be uninstalled.


Uninstall NHM-7 Phone Data Package
Do you want to completely remove the Phone Data Package application and all of its components?
OK
Cancel

Once the previously installed Data package is uninstalled, choose “Finish”.


InstallShield Wizard
Uninstallation complete
InstallShield Wizard has completed the uninstallation of NHM-7 Phone Data Package. Click Finish to exit the wizard.
< Back
Finish
Cancel

Run the ***nhm-7_dp_v_6.00.exe*** again to continue installation from the beginning.

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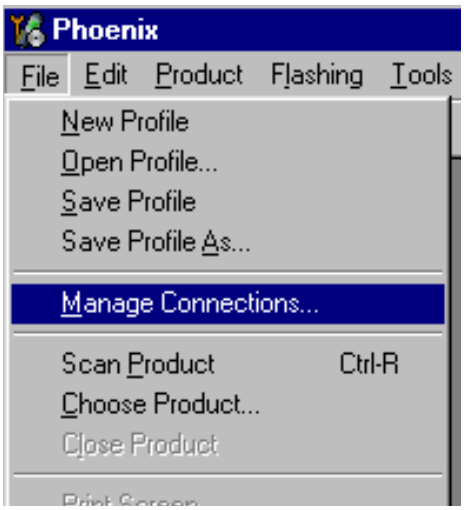
How to Manage Connections

Start Phoenix Service SW and Login.

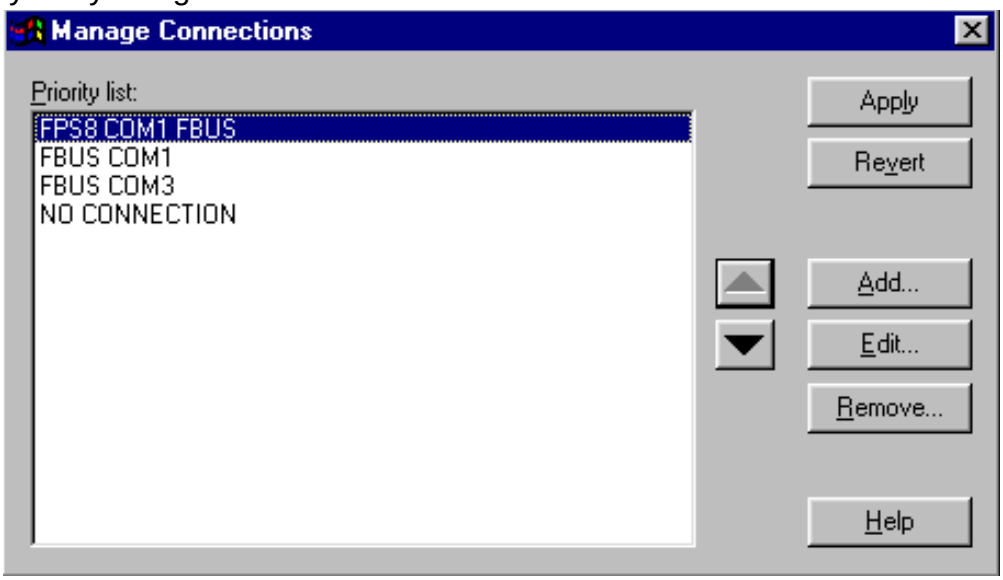
Choose “Manage Connections” From “File” – Menu



Existing connections can be selected, edited, deleted and new ones created by using this dialog.

A connection can be created either manually or by using a Connection Wizard.

To add new connection, choose “Add” and select if you want to create it manually or by using the Wizard.



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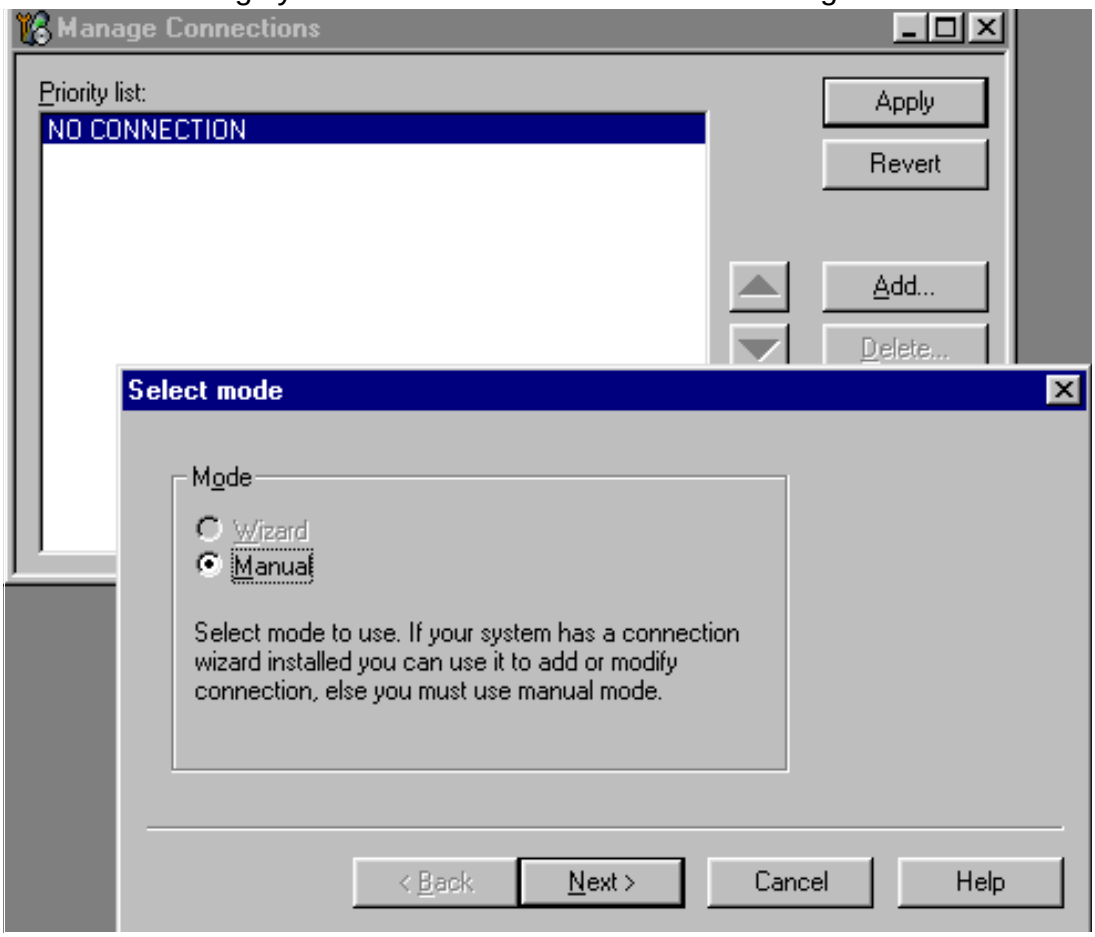
Choose “Next” to continue.

In the next dialogs you will be asked to select some settings for the connection



Manual Settings

A) For **FLS-4 POS Flash Device** choose following connection settings

Media: FBUS

COM Port: Virtual COM Port used by FLS-4 **Please check this always!**

(To check please go to Windows / Control Panel / FLS Virtual Port / Configuration)

B) For **FPS-8 Flash Prommer** choose following connection settings:

Media: FPS-8

Port Num: COM Port where FPS-8 is connected

COMBOX_DEF_MEDIA: FBUS

Choose “Finish” to complete.

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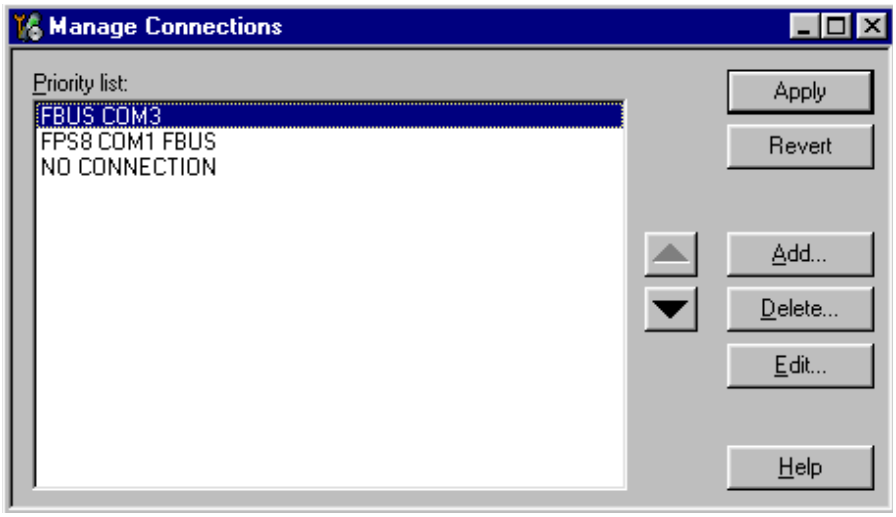
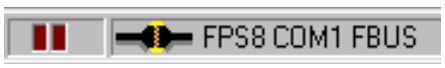
If you use the Wizard, connect the tools and a phone to your PC and the wizard will automatically try to configure the correct connection.

Activate the connection you want to use by clicking it and use up/down arrows to move it on top of the list. Choose “Apply”.

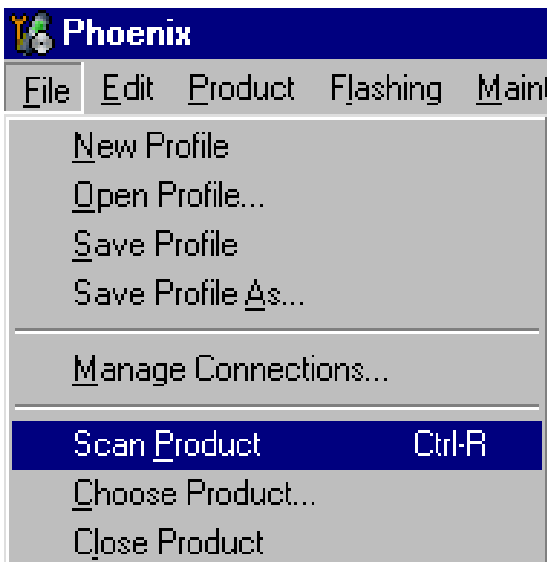
The connection is now selected and can be used after closing the “Manage Connections” window.



Selected connection will be shown on the right hand bottom corner of the screen.



To use the selected connection, connect the phone to Phoenix with correct service tools, make sure that it is switched on and select “Scan Product”.



When the Product is found, Phoenix will load product support and when everything is ready, name of the loaded product support module and its version will

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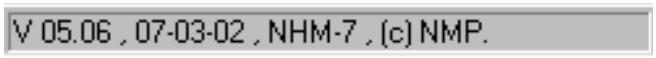
be shown on the bottom of the screen.



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How to Update Flash Support Files for FPS-8* and FLS-4*

Before Installation

Install Phoenix Service SW and Phoenix data package.

Download the installation package (e.g. ***flash_update_02_03_000.exe***) to your computer (e.g. C:\TEMP).

Close all other programs.

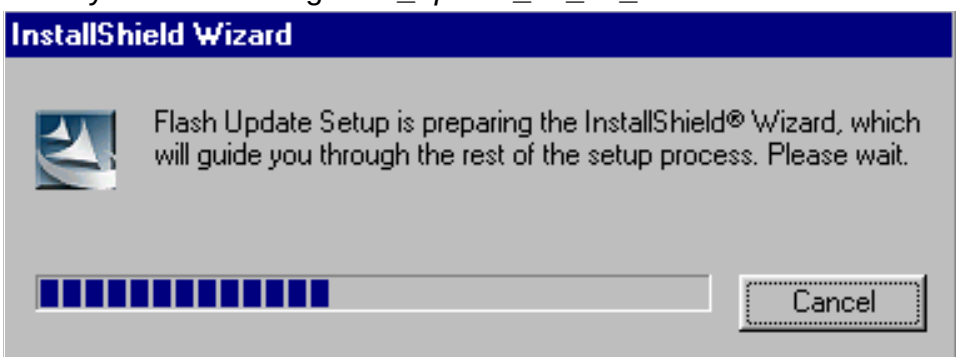
Run the application file (e.g. ***flash_update_02_03_000.exe****)* and follow instructions on the screen.

Note:

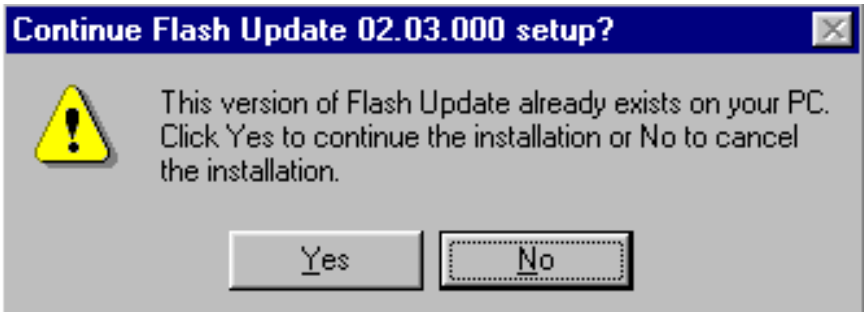
- The flash support files are delivered in the same installation package with Phoenix data package.
- Normally it is enough to install the data package only before updating the FPS-8.
- Separate installation package is for flash support files is available, and the files can be updated according to this instruction.

Installing the Flash Support Files

Start by double clicking *flash_update_02_03_000.exe***.** Installation begins.


InstallShield Wizard
Flash Update Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

If you already have the same Flash Update package files installed, you need to confirm if you want them to be reinstalled.


Continue Flash Update 02.03.000 setup?
This version of Flash Update already exists on your PC. Click Yes to continue the installation or No to cancel the installation.
Yes
No

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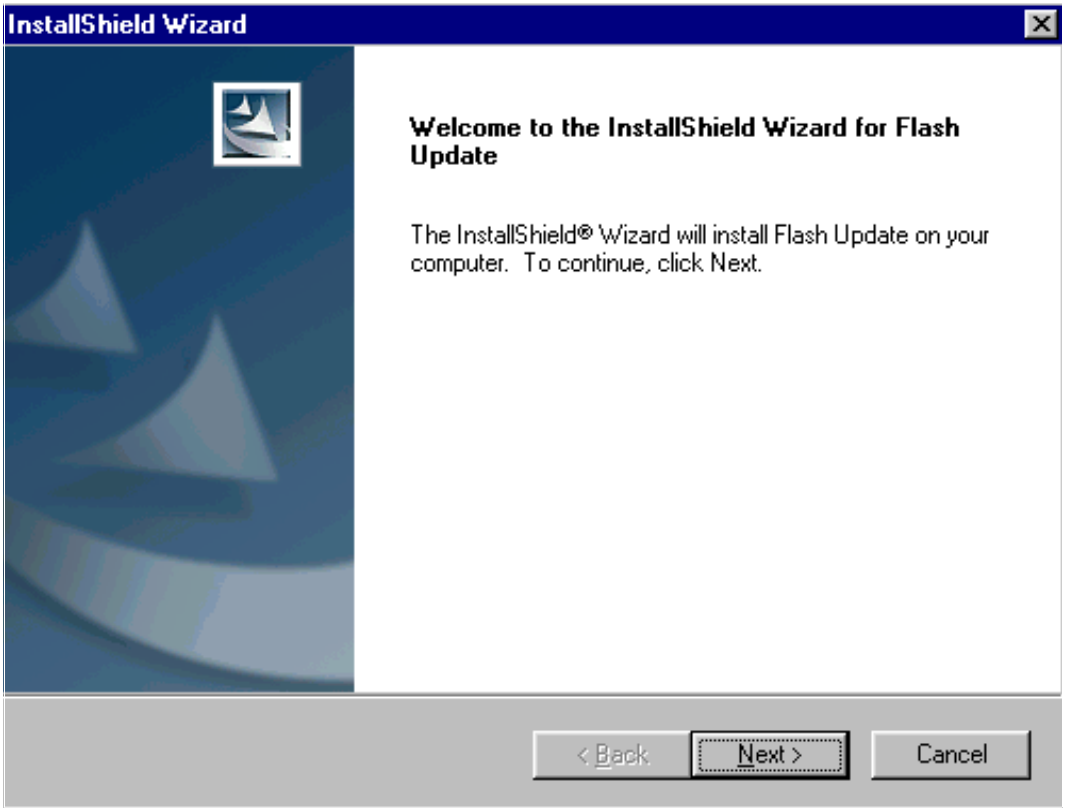
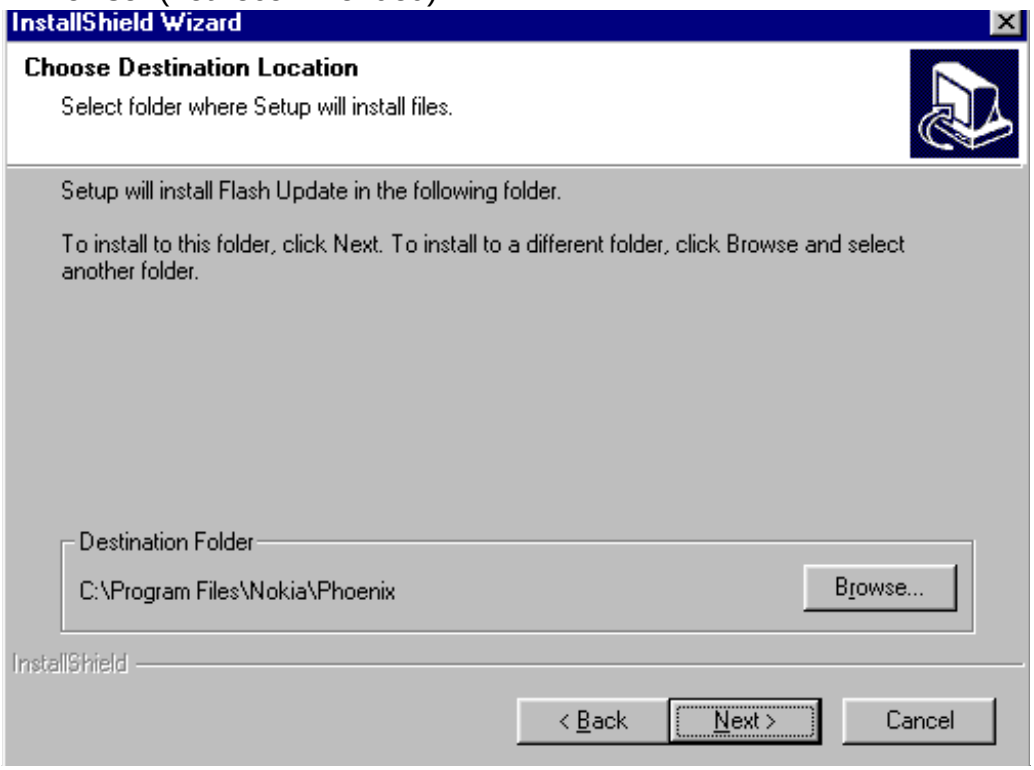
Choose “Next” to continue installation


InstallShield Wizard
Welcome to the InstallShield Wizard for Flash Update
The InstallShield® Wizard will install Flash Update on your computer. To continue, click Next.
< Back
Next >
Cancel

It is **highly** recommended to install the files to the default destination folder ***C:\Program Files\Nokia\Phoenix***.

Choose “Next” to continue. You may choose another location by selecting “Browse” (not recommended).


InstallShield Wizard
Choose Destination Location
Select folder where Setup will install files.
Setup will install Flash Update in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\Nokia\Phoenix
Browse...
InstallShield
< Back
Next >
Cancel

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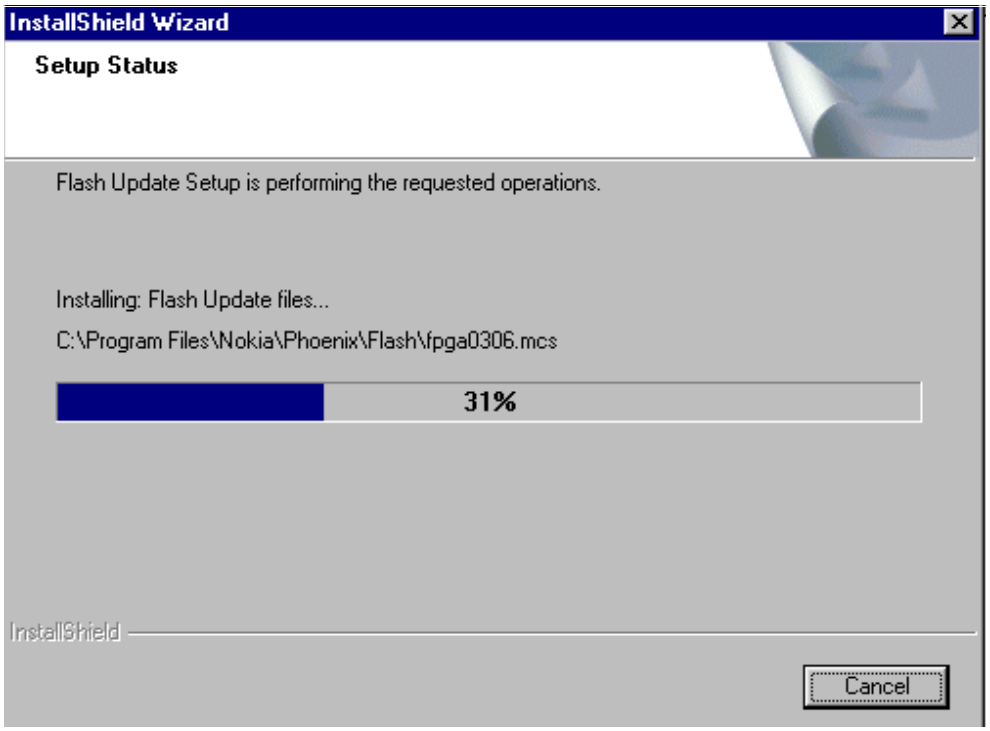
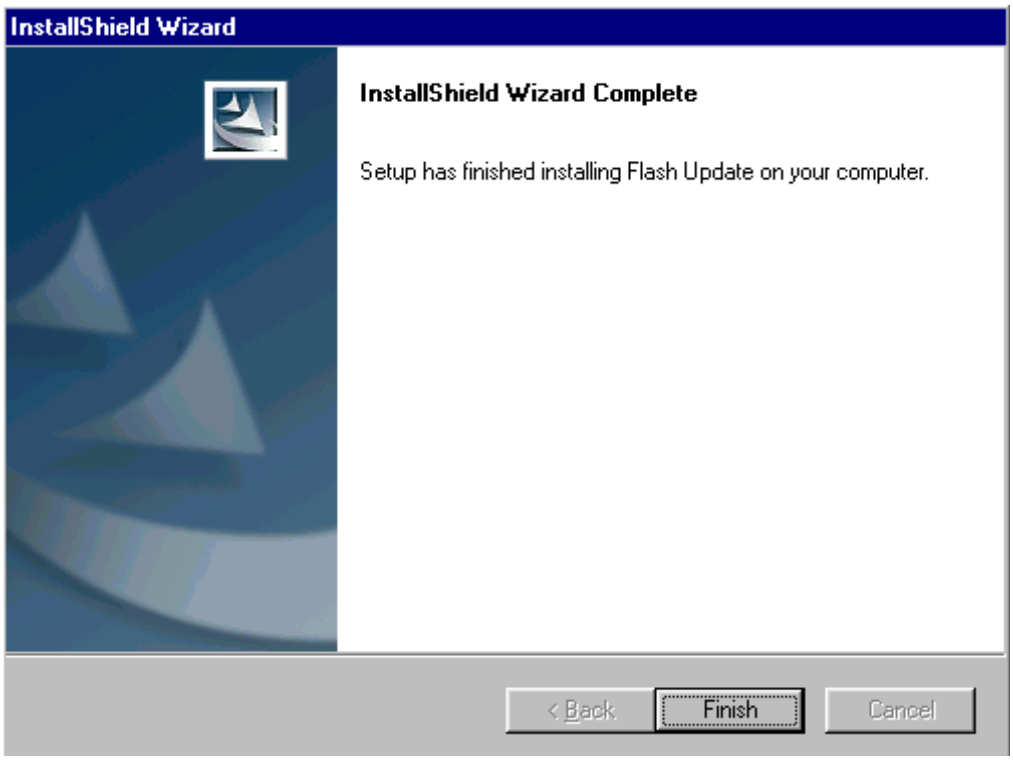
Installation continues…



Choose “Finish” to complete procedure.

- **FLS-4 can be used right after Flash Update Package is installed.**
- **FPS-8* must be updated by using Phoenix!**



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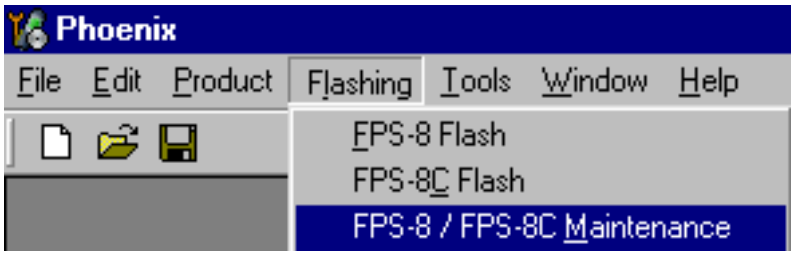
How to Update The FPS-8* Flash Prommer SW

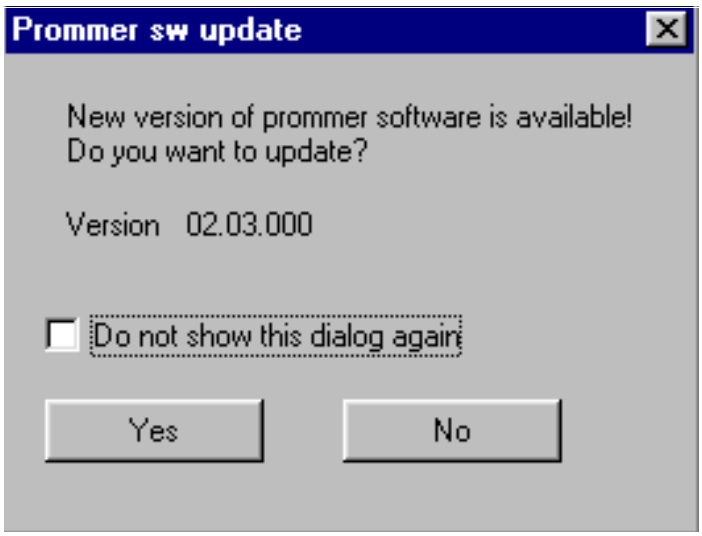
Start Phoenix Service Software

.

Select”FPS-8 / FPS-8C maintenance” from”Flashing” menu.



When new FPS-8 flash update package is installed to computer you will be asked to update the files to your FPS-8 Prommer. Select”Yes” to update files.



Update procedure takes a couple of minutes.

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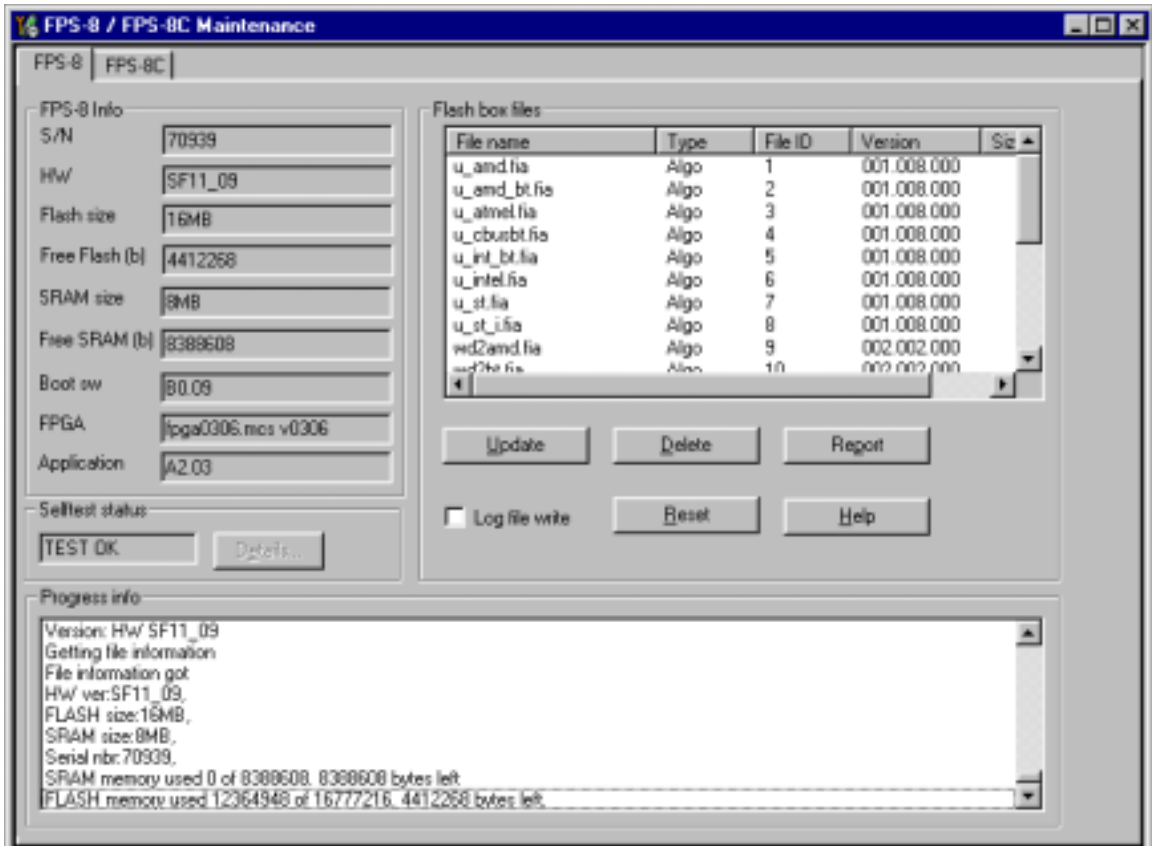
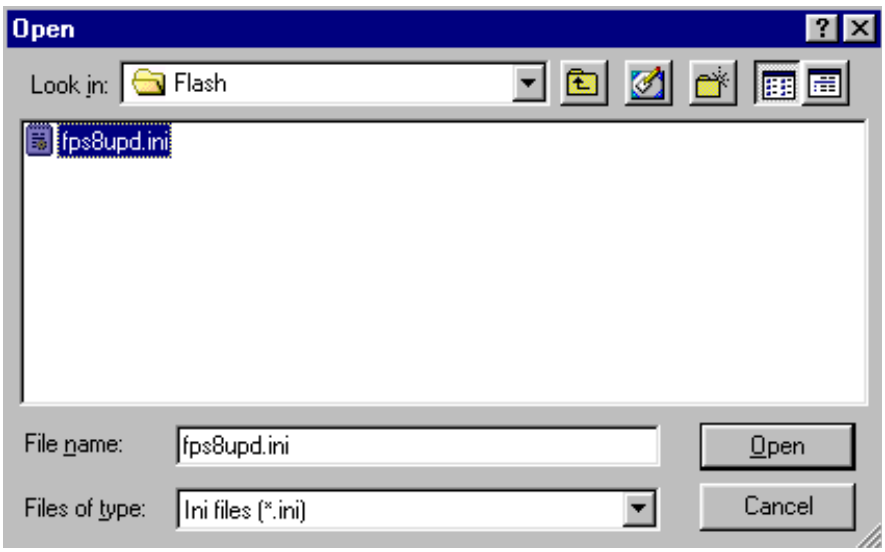


FPS-8 sw can also be updated by pressing”Update” button and selecting appropriate **fps8upd.ini** file under ***C:\Program Files\Nokia\Phoenix*\Flash** - directory



All files can be loaded separately to FPS-8. To do this, just press right mouse button in Flash box files” window and select file type to be loaded.

More information and help can be found from “Help” dialog.

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FPS-8 Activation and Deactivation

- Before the FPS-8 can be successfully used for phone programming, it must be first activated.
- If there is a need to send FPS-8 box to somewhere e.g. for repair, box must be first deactivated.
- Note: Phoenix should be closed before running BoxActivation.exe.

Activation

Before FPS-8 can be successfully used for phone programming, it must be first activated.

Fill in first “FPS-8 activation request” sheet, in the FPS-8 sales package and follow the instructions in the sheet.

When activation file is received (e.g. 00000.in), copy it to ***C:\ProgramFiles\Nokia\Phoenix\BoxActivation*** - Directory on your computer (This directory is created when Phoenix is installed).

Start *BoxActivation.exe* from *C:\ProgramFiles\Nokia\Phoenix\BoxActivation* – directory*. Fo*llow the instructions in the screen.

1. Choose correct COM Port where your FPS-8 is connected
2. Information about the FPS-8 is shown
3. Choose “Activate the Box”
4. Activation file will be shown, check that it is correct
5. Box will be activated and updated information is shown
6. Turn FPS-8 power off and on to complete activation

Deactivation

Start *BoxActivation.exe* from *C:\ProgramFiles\Nokia\Phoenix\BoxActivation* directory and follow the instructions in the screen.

1. Choose correct COM Port where your FPS-8 is connected
2. Information about the FPS-8 is shown
3. Choose “Deactivate the Box”
4. Confirm Deactivation.
5. Box will be deactivated, please exit BoxActivation
6. Turn FPS-8 power off and on to complete deactivation

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JBV-1 Docking Station SW

The JBV-1 Docking Station is a common tool for all DCT-4 generation products. In order to make the JBV-1 usable with different phone models, a phone specific Docking Station Adapter is used for different service functions.

The JBV-1 Docking Station contains Software (Firmware) which can be updated.

You need the following equipment to be able to update JBV-1 software:

- PC with USB connection
- Operating System supporting USB (Not Win 95 or NT)
- USB Cable (Can be purchased from shops or suppliers providing PC hardware and accessories)
- JBV-1 Docking Station
- External Power Supply 11-16V

Before Installation

- Download *Jbv1_update.zip* – file to your computer (e.g. C:\TEMP) from your download web site.
- Close all other programs
- Follow instructions on the screen

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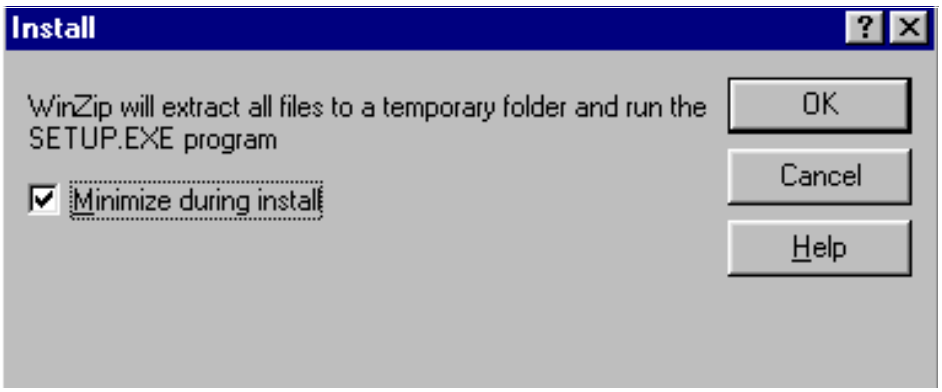
Installing SW Needed for the JBV-1 SW Update

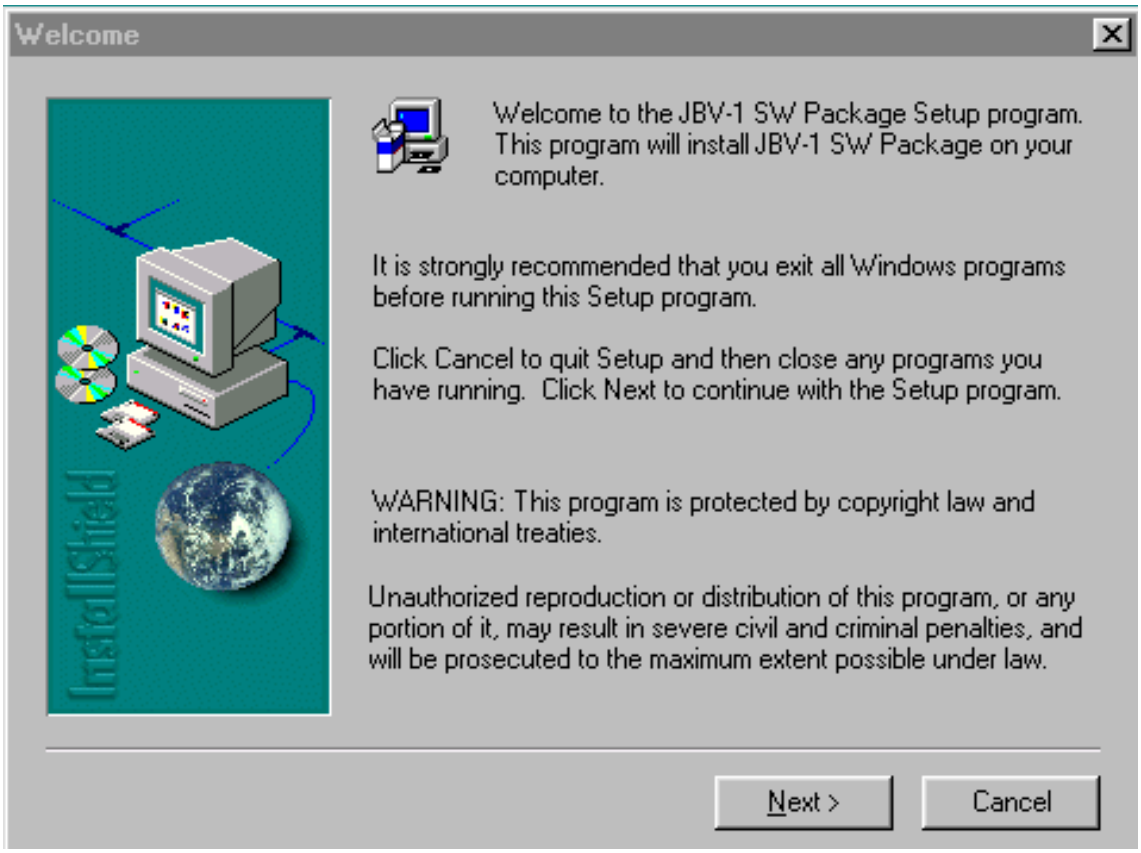
Note: DO NOT CONNECT THE USB CABLE / JBV-1 TO YOUR COMPUTER YET!

Run ***Jbv1_update.zip*** file and start SW Installation by double clicking ***Setup.exe***.

Files needed for JBV-1 Package setup Program will be extracted.



Installation begins, please read the information shown and Choose “Next” to continue.


Welcome
Welcome to the JBV-1 SW Package Setup program. This program will install JBV-1 SW Package on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
InstallShield
Next >
Cancel

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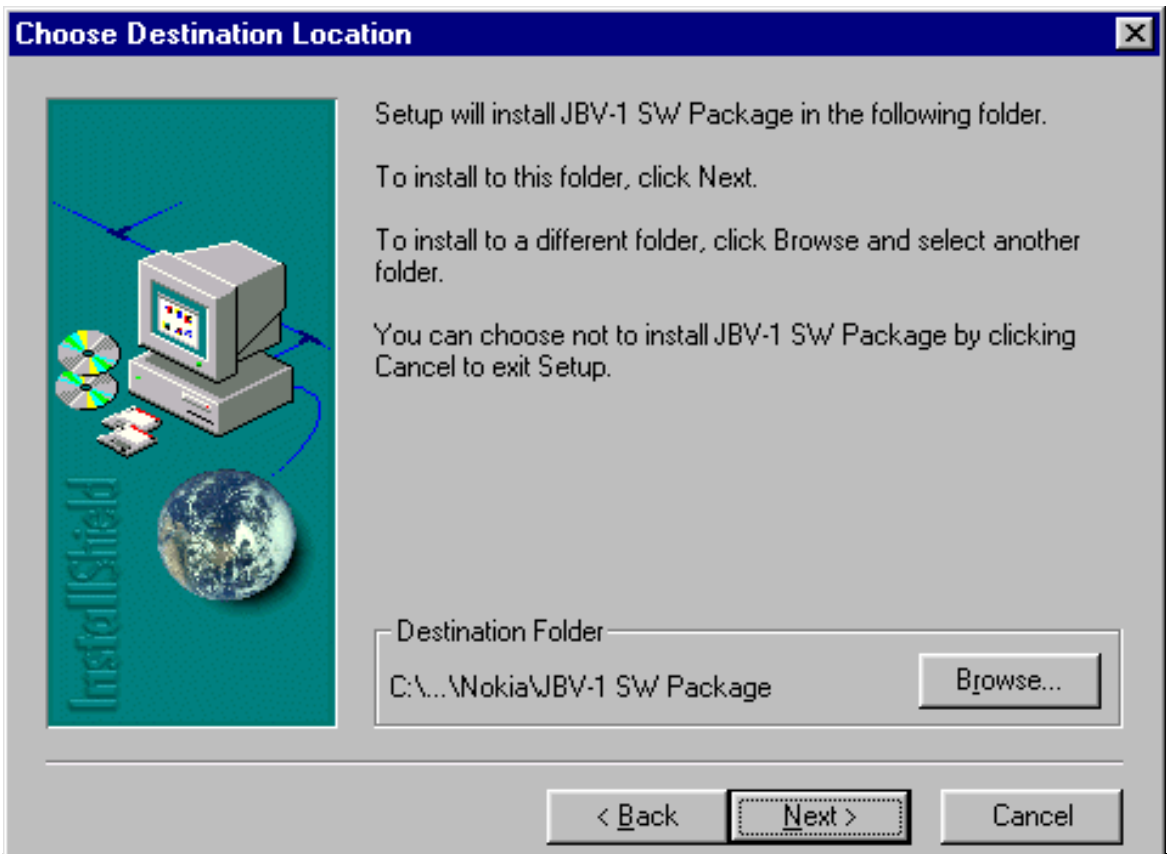
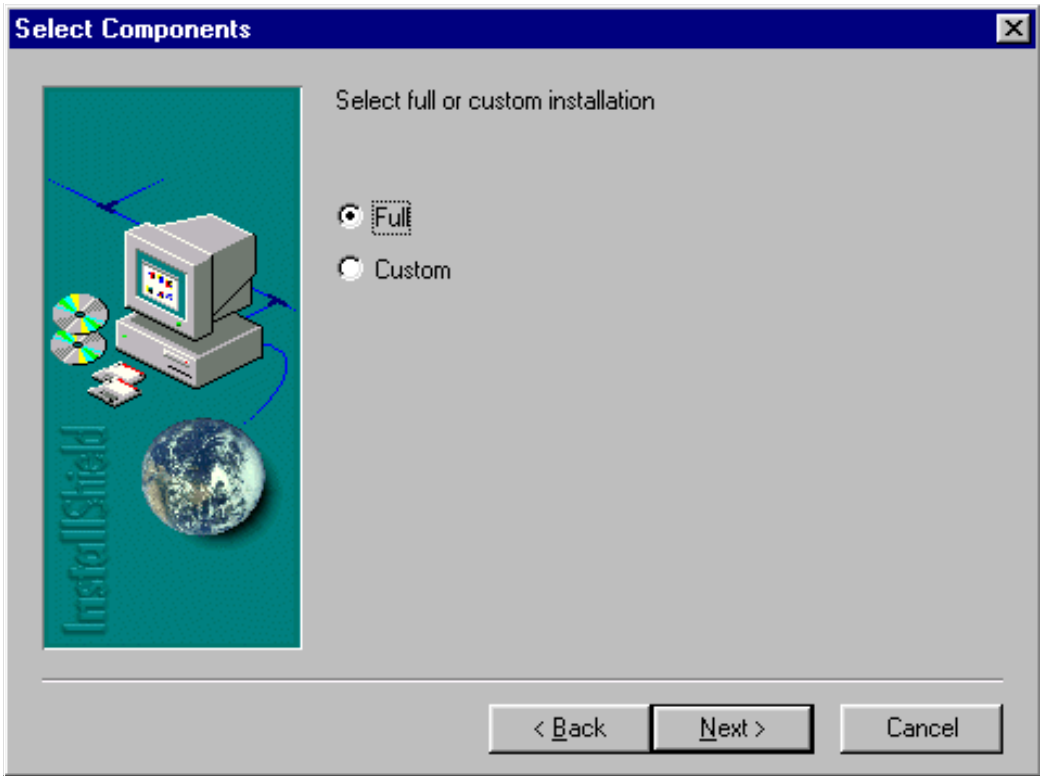
Use suggested destination folder where JBV-1 SW Package will be installed and choose “Next” to continue.


Choose Destination Location
Setup will install JBV-1 SW Package in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install JBV-1 SW Package by clicking Cancel to exit Setup.
InstallShield
Destination Folder
C:\...\Nokia\JBV-1 SW Package
Browse...
< Back
Next >
Cancel

Select “Full” Installation and choose “Next” to continue



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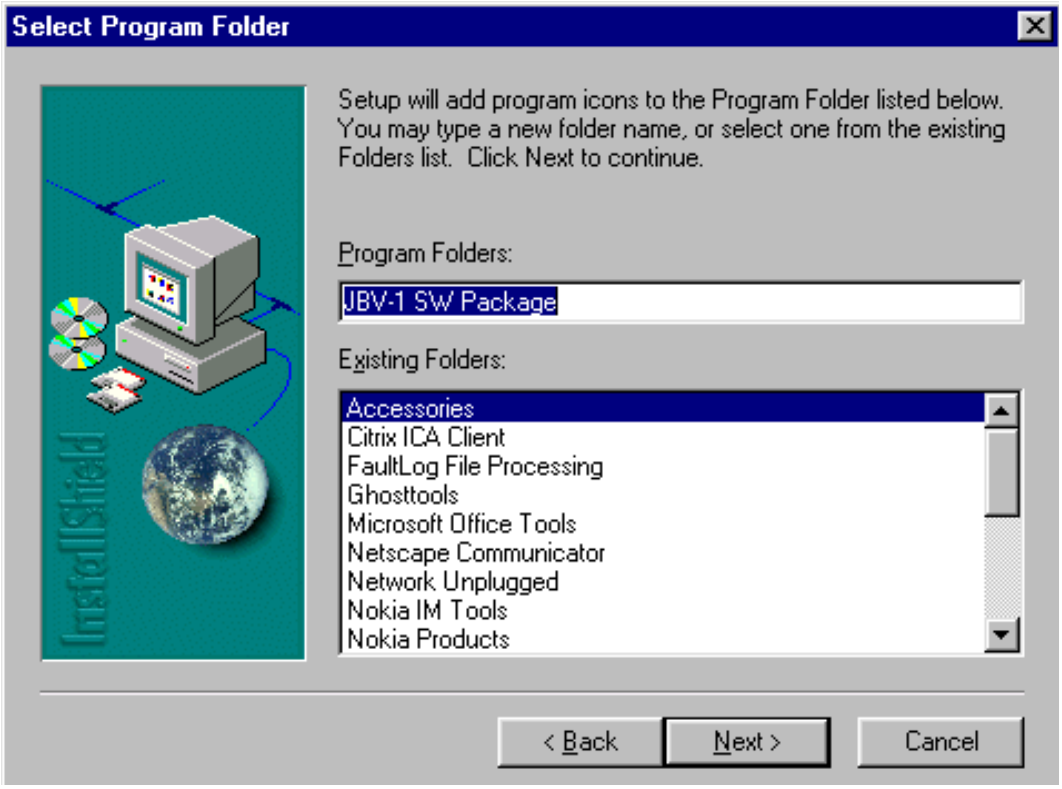
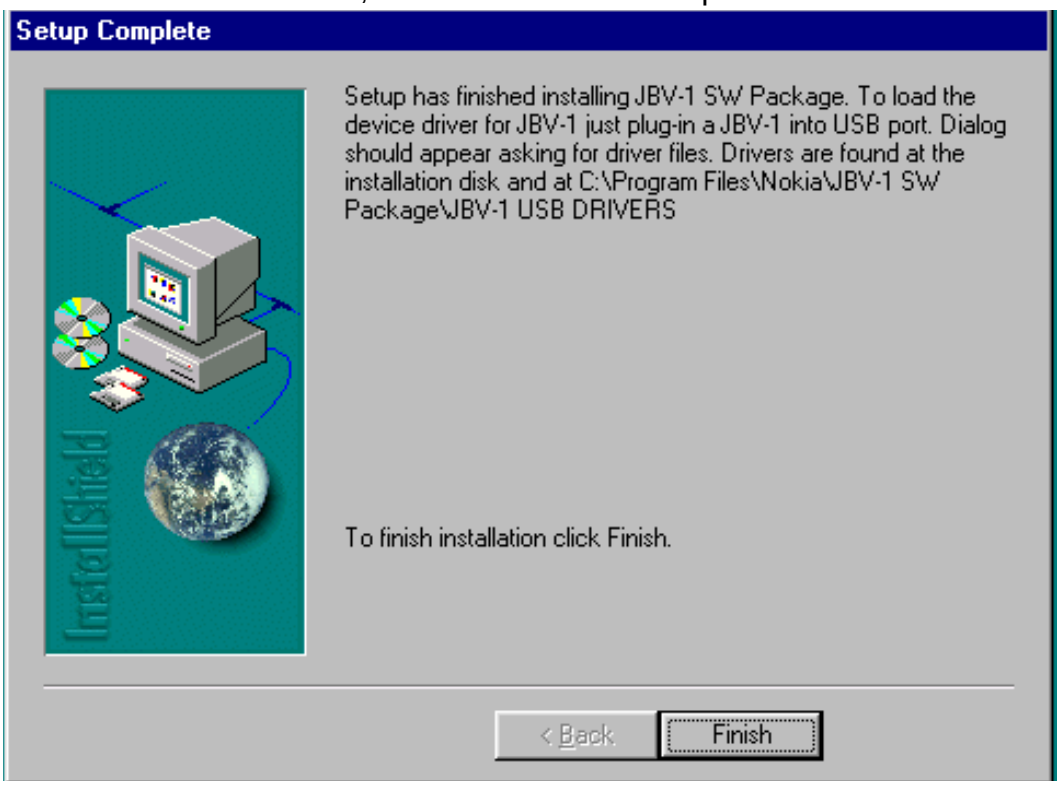
Program Folder will be created. Choose “Next” to continue, Software files will be installed.



After successful installation, choose “Finish” to complete.


Setup Complete
Setup has finished installing JBV-1 SW Package. To load the device driver for JBV-1 just plug-in a JBV-1 into USB port. Dialog should appear asking for driver files. Drivers are found at the installation disk and at C:\Program Files\Nokia\JBV-1 SW Package\JBV-1 USB DRIVERS
To finish installation click Finish.
InstallShield
< Back
Finish

NOW YOU CAN CONNECT THE USB CABLE / JBV-1 TO YOUR COMPUTER!

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Connect power to JBV-1 (11-16V DC) from external power supply, then connect USB Cable between JBV-1 USB connector and PC.

Windows will detect connected USB cable and detect drivers for new HW. Please follow the instructions and allow Windows to search and install the best drivers available. After this procedure the actual JBV-1 SW update can begin.

Add New Hardware Wizard
This wizard searches for new drivers for:
USB Device
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel

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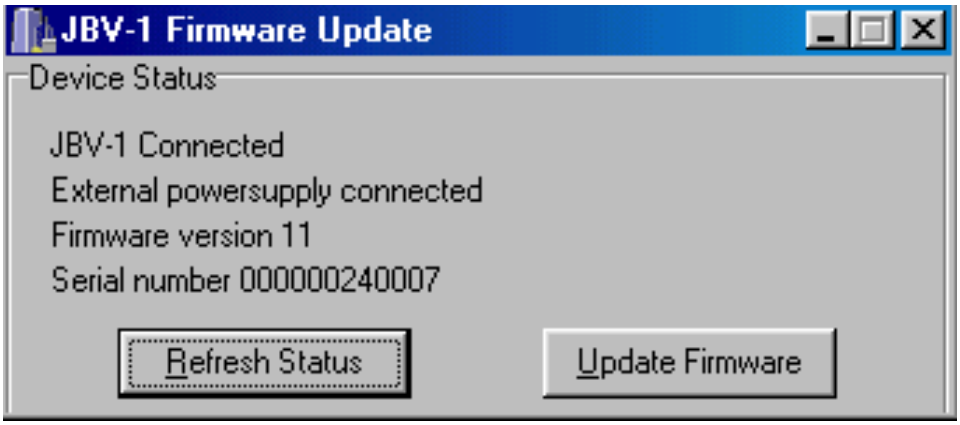
Updating the JBV-1 Docking Station Software

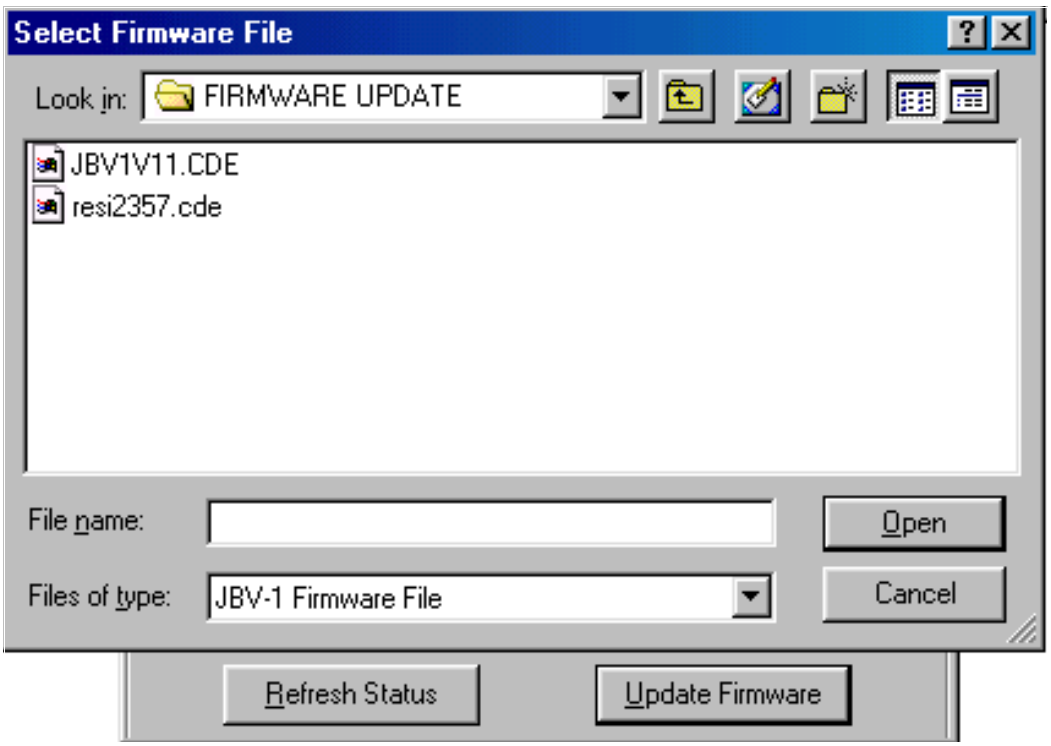
Go to folder *C:\Program Files\Nokia\ JBV-1 SW Package\ FIRMWARE UPDATE* and start JBV-1 Update SW by double clicking *fwup.exe.*

JBV-1 Firmware update starts and shows current status of the JBV-1 connected.

If firmware version read from your JBV-1 is not the latest one available, it needs to be updated by choosing “Update Firmware”.



Choose file *JBV1v11.CDE* (example used here is for v 11) and “Open” to update your JBV-1.



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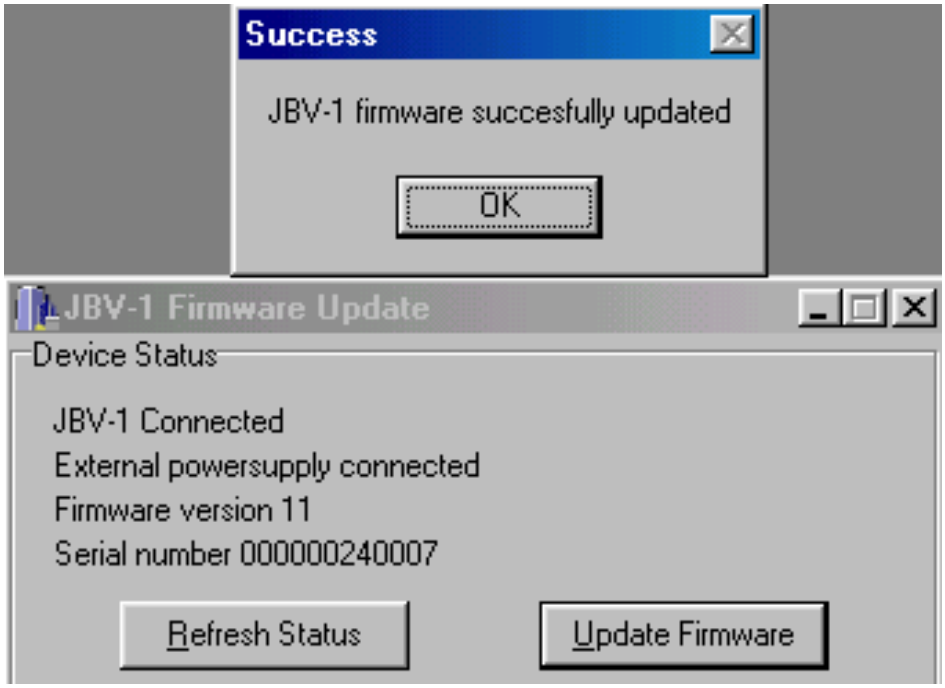
After Successful update, current JBV-1 status will be shown. You have now updated the software of your JBV-1 docking station and it is ready for use.



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Setup Instructions

Flash Concept - POS (Point of Sale)

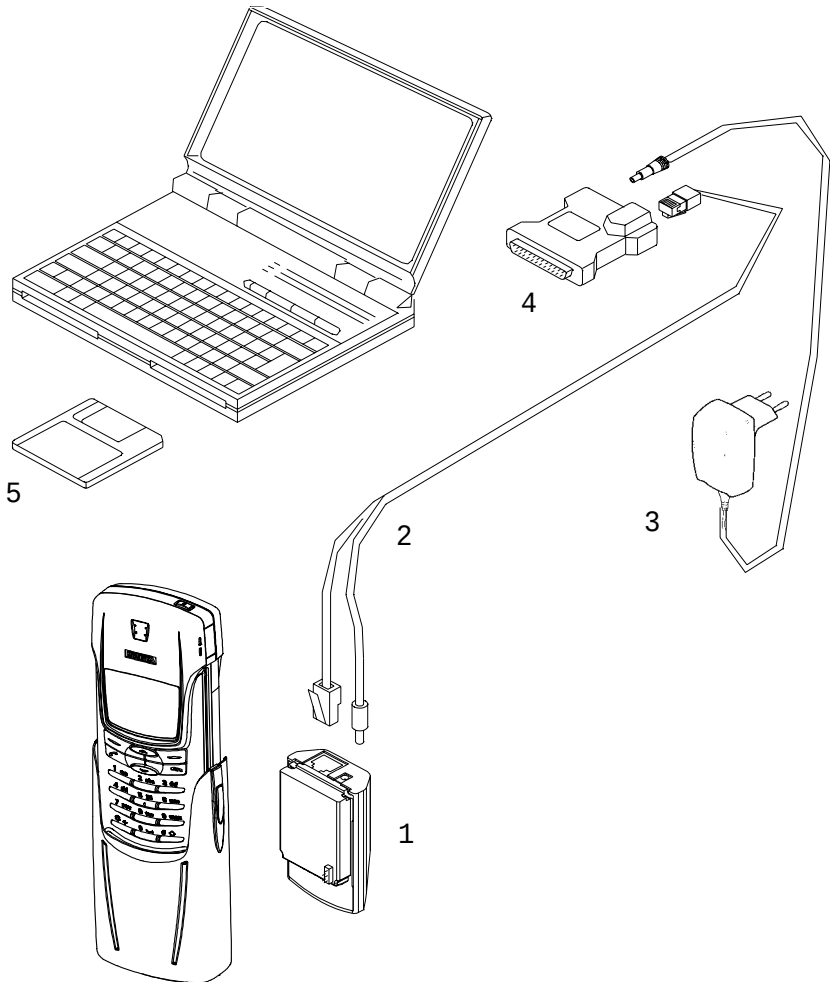

Figure 1: POS flash

Item:	Service accessory:	Type	Product code:
1	Point Of Sales flash loading adapter	FLA-16	0775265
2	Service cable	XCS-1	0730218
3	AC Charger	ACP-8; see chapter General Information/Desktop	
4	POS flash dongle for E/A area	FLS-4S	0080541
	POS flash dongle for APAC area	FLS-4S	0080542
5	Phoenix Service SW		8409031
	Phoenix Service SW	CD-ROM	0775311
	NHM-4 Flash SW data		8411657
	NHM-4 Flash SW data	CD-ROM	0775313

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Jig Concept

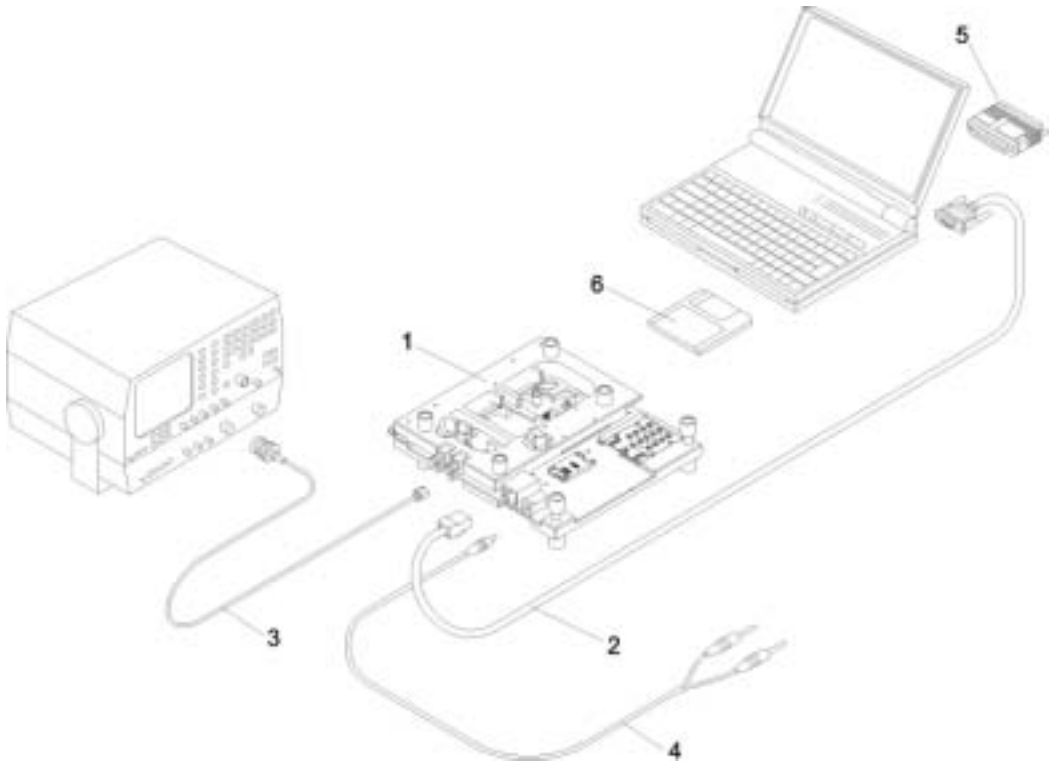

Figure 2: Module jig concept

Item:	Service accessory:	Type:	Product code:
1	Module jig	MJS-39	0770266
2	DC power cable	PCS-1	0730012
3	RF antenna cable	XRF-1	0730085
4	Service MBUS cable	DAU-9S	0730108
5	Software protection key	PKD-1	0750018
6	Phoenix Service SW		8409031
	Phoenix Service SW	CD-ROM	0775311
	NHM-4 Flash SW data		8411657
	NHM-4 Flash SW data	CD-ROM	0775313

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JBV-1 Flash Concept

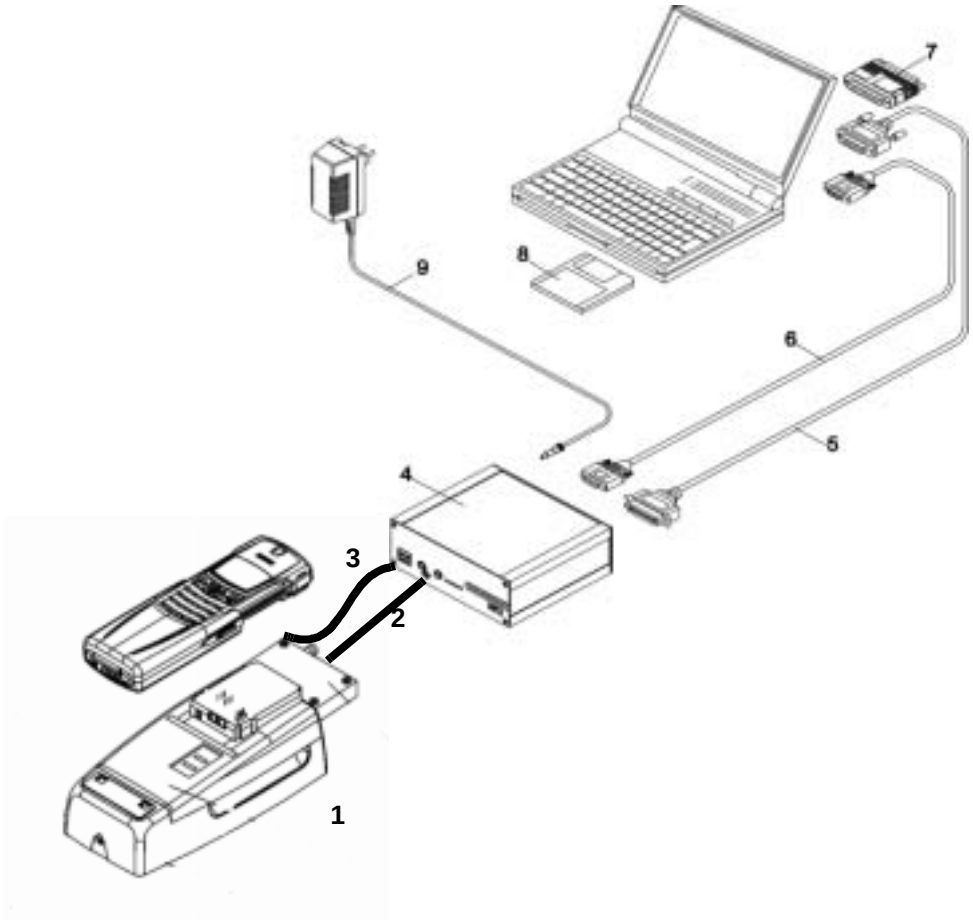

Figure 3: JBV-1 Flash concept

Item:	Service accessory:	Type:	Product code:
1	Docking station with adapter	JBV-1 and MJF-3	0770298, 0775266
2	DC power cable	PCS-1	0730012
3	Modular cable	XCS-4	0730178
4	Flash programmer	FPS-8 sales pack	0080321
5	D9-D9 cable	AXS-4, Incl. in FPS-8 sales pack	0730090
6	Software protection key	PKD-1	0750018
7	Phoenix Service SW		8409031
8	Phoenix Service SW	CD-ROM	0775311
	NHM-4 Flash SW data		8411657
	NHM-4 Flash SW data	CD-ROM	0775313
9	AC charger	Incl. in FPS-8 sales pack	0680032

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Service Concept

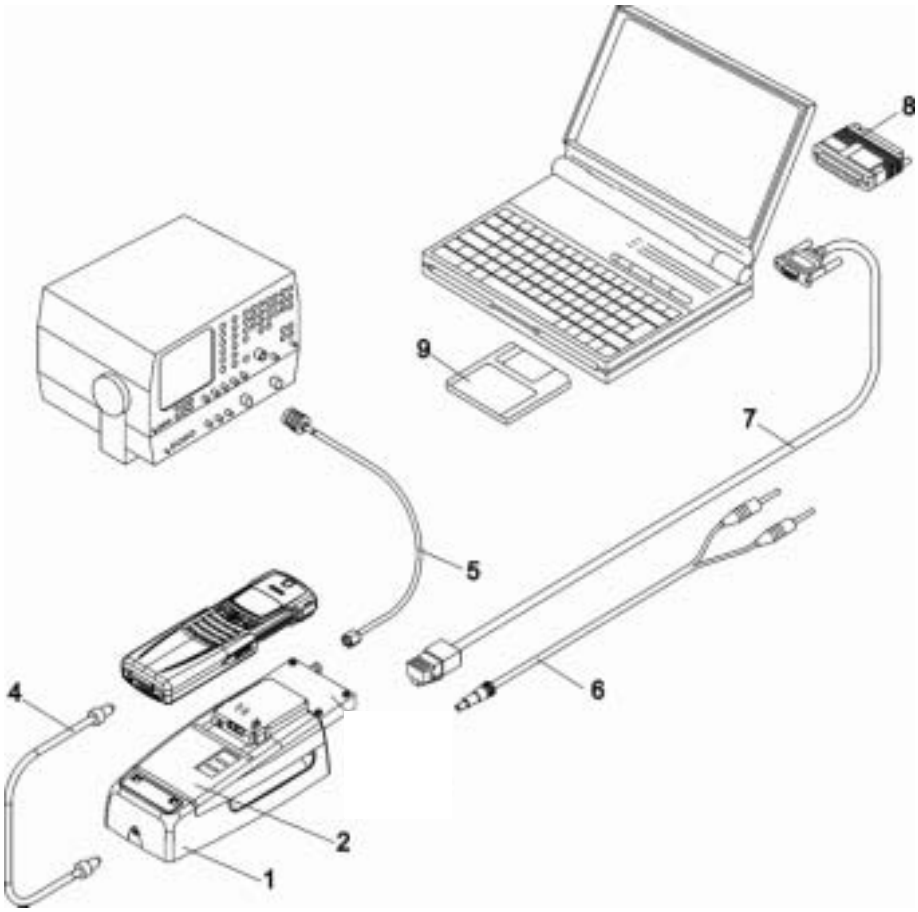

Figure 4: Service Concept

Item:	Service accessory:	Type:	Product code:
1	Docking station	JBV-1	0770298
2	Docking station adapter	MJF-3	0775266
4	DC-DC cable	SCB-3	0730114
5	RF antenna cable	XRF-1	0730085
6	DC power cable	PCS-1	0730012
7	Service MBUS cable	DAU-9S	0730108
8	Software protection key	PKD-1	0750018
9	Phoenix Service SW		8409031
	Phoenix Service SW	CD-ROM	0775311
	NHM-4 Flash SW data		8411657
	NHM-4 Flash SW data	CD-ROM	0775313

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Parallel Flash concept

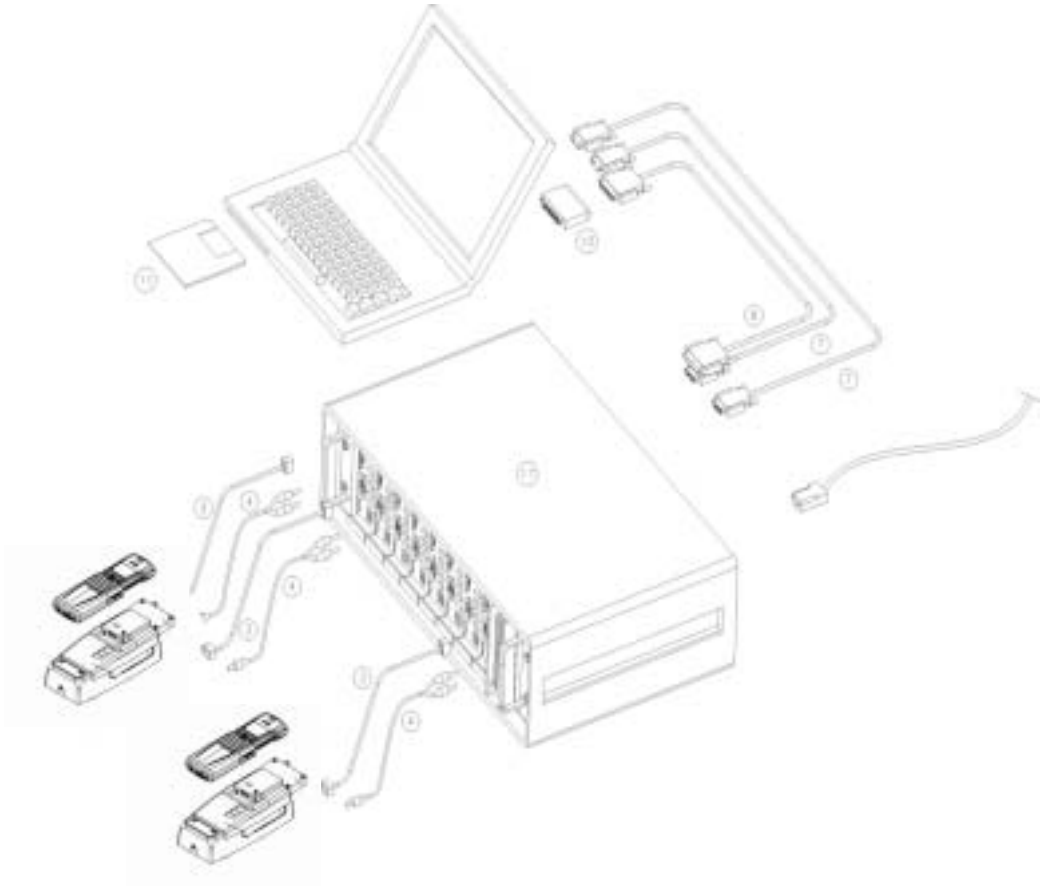

Figure 5: Parallel flash concept

Item:	Service accessory:	Type:	Product code:
1	Docking station adapter	MJF-3	0775266
2	Docking station	JBV-1	0770298
3	Modular cable	XCS-4	0730178
4	DC power cable	PCS-1	0730012
7	D9 - D9 cable	AXS-4, incl. in FPS-8C sales pack	0730090
8	Printer cable	Incl. in FPS-8C sales pack	0730029
10	Software protection key	PKD-1,	0750018
11	Phoenix Service SW		8409031
	Phoenix Service SW	CD-ROM	0775311
	NHM-4 Flash SW data		8411657
	NHM-4 Flash SW data	CD-ROM	0775313
17	Parallel flash prommer	FPS-8C,	0080396

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Quick Guide for Tuning With Phoenix

General

RF tunings must be made in the same order as shown in this document.

If baseband tunings are needed, they should be made before the RF tunings

Avoid unnecessary tuning – factory tuning values are always the most accurate ones.

Views in this document may change as the service software is developed. Please refer to the Phoenix help files, phone model specific service manual and bulletins for help.

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Service Tool Concept for RF Tunings

- All RF tuning operations must be carried out in MJS-39 Module Jig
- Coupler can only be used for testing, NOT for tuning!
- Power to MJS-39 must be supplied from an external DC power supply, not FPS-8 prommer
- Maximum input voltage is 12 VDC, nominal input for RF tunings is +8V D.C
- Remember cable attenuation when setting required RF levels

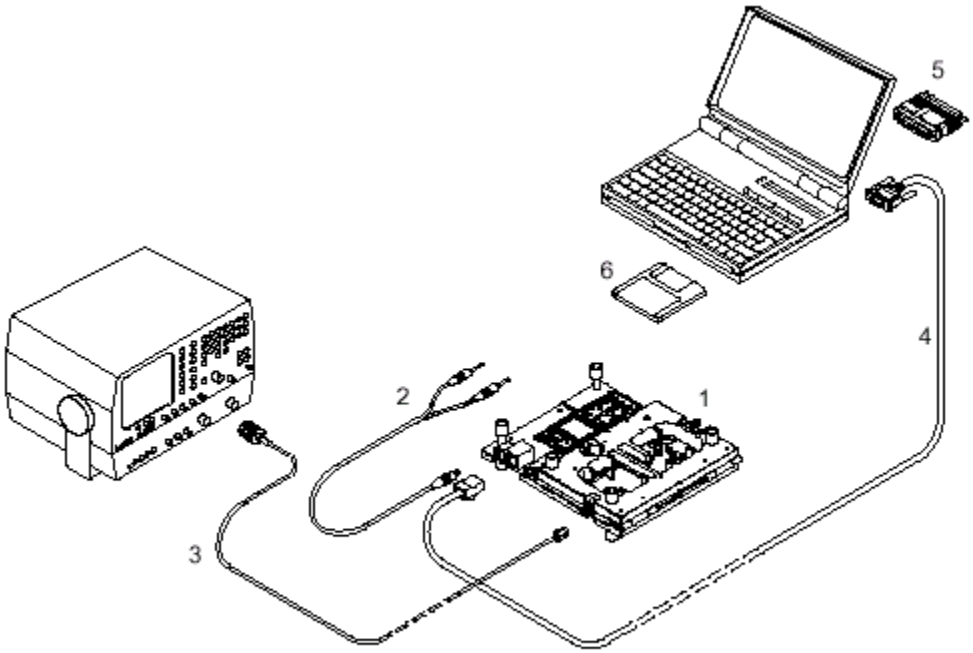

Figure 6: RF tuning setup

Item:	Service accessory:	Type:	Product code:
1	Module jig	MJS-39	0770266
2	DC power cable	PCS-1	0730012
3	Modular cable	XRF-1	0730085
4	Service Mbus cable	DAU-9S	0730138
5	Software protection key	PKD-1,	0750018
10	Phoenix Service SW		8409031
11	Phoenix Service SW	CD-ROM	0775311
	NHM-4 Flash SW data		8411657
	NHM-4 Flash SW data	CD-ROM	0775313

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Receiver tunings

RX Channel Select Filter Calibration

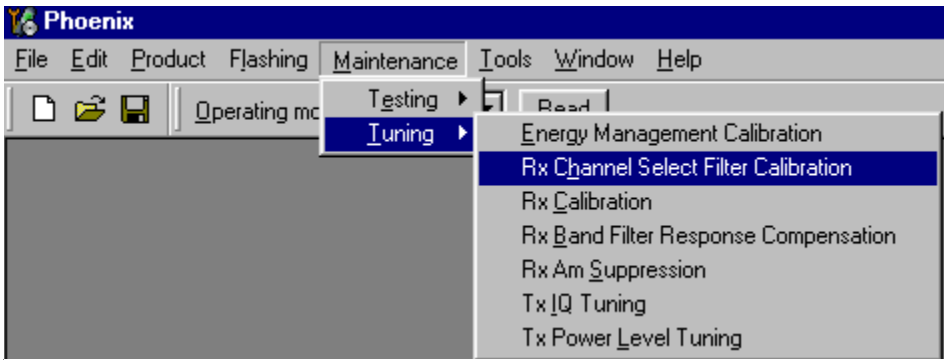
Extra equipment / external RF signal not needed.

Must be done before other RX calibrations.

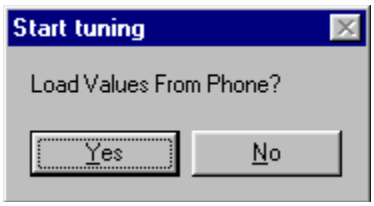
This function is used to calibrate RX channel select filter in GSM Phones.

Rx Channel select filter is tuned only in one band = Single calibration for both bands.

Select Maintenance => Tuning => Rx Channel select filter calibration.



Select "Yes" to start tuning with values already saved to the phone.



Press "AutoTune" to start the tuning

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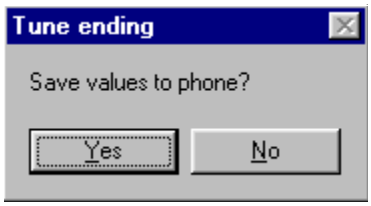
Tuning values should be 0...31

Select "Stop"

If values shown are within limits, choose "Yes" to save values to the phone save them to phone.



Close the "RX Channel Select Filter Calibration "– dialog to end tuning

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RX Calibration

RF generator needed

This tuning performs RX Calibration

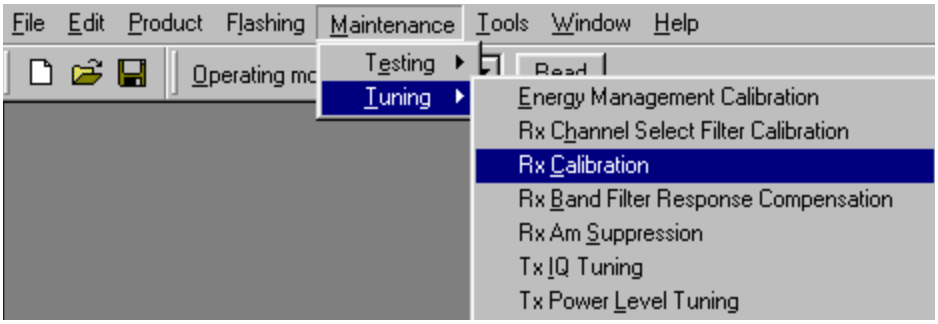
Must be done separately on both bands!

Start RX Calibration at EGSM (GSM900), then do RX Calibration at GSM1800 band.

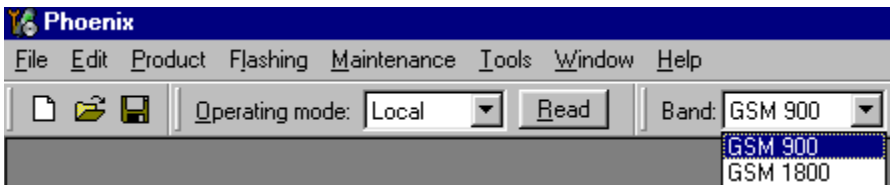
AFC tuning is done while EGSM (GSM900) band RX Calibration is performed.

Remember to take jig and cable attenuations into account!

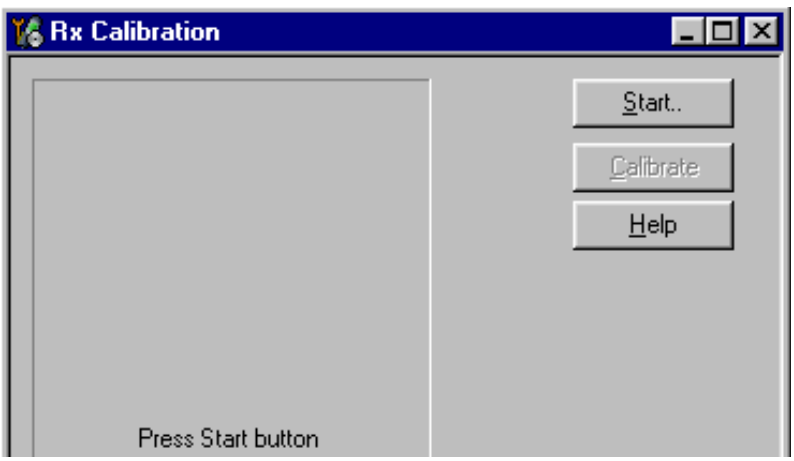
Select Maintenance => Tuning => Rx calibration



When RX Calibration has been started, you can choose the correct band from the drop-down menu. Begin tuning from EGSM 900 band.



Press "Start"



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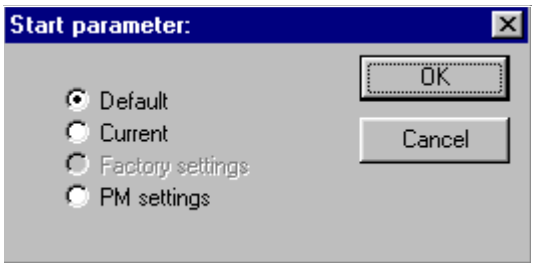
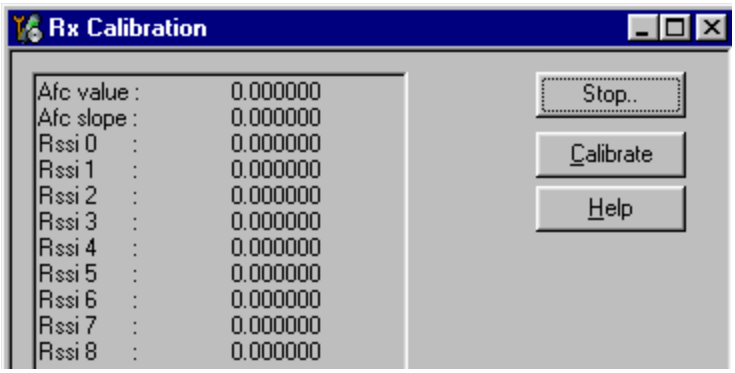
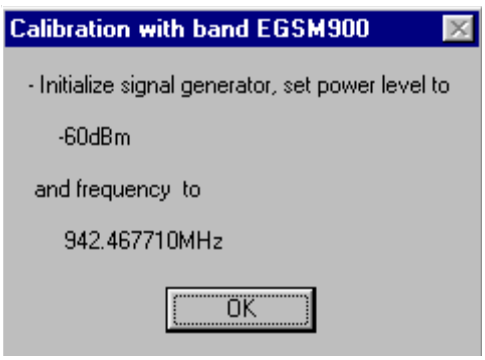
Select "Default" to start tuning from factory default values => OK



Press "Calibrate"



Set RF generator to required frequency => OK



Tuning values and ADC readings will be shown

Typical values and limits in (GSM900) RX Calibration:

EGSM (GSM900)	Typical value	Limits
AFC value	60	-350…+350
AFC slope	260	150...350
RSSI0	72.5	67...77
RSSI1	82.5	77...87
RSSI2	92.5	87...97
RSSI3	98.5	94...104

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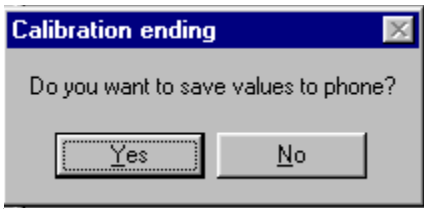
EGSM (GSM900)	Typical value	Limits
RSSI4	108.5	104...114
RSSI5	118.5	114...124
RSSI6	128.5	124...134
RSSI7	138.5	134...144
RSSI8	148.5	144...152

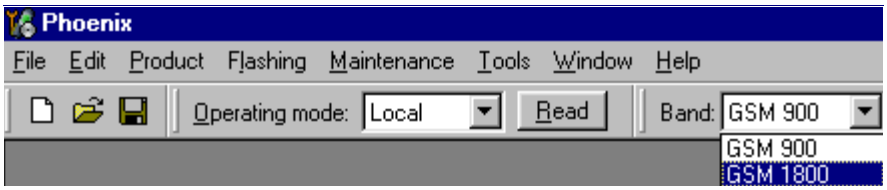
Choose "Stop" to end tuning

If values shown are within limits, choose "Yes" to save values to the phone

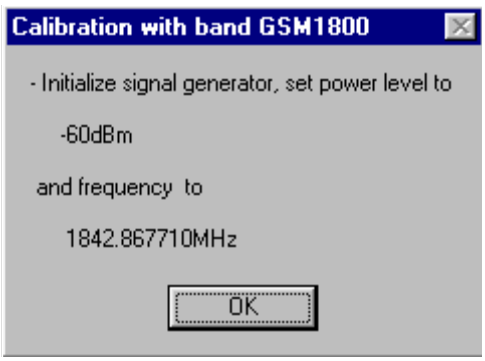


Continue tuning from GSM1800. Choose the correct band from the dropdown menu.

Press "Start" to continue just like in the EGSM900 Band above.



When asked, set RF generator to required frequency => OK



Typical values and limits in (GSM1800) RX Calibration:

GSM1800	Typical value	Limits
RSSI0	67.5	63...73
RSSI1	77.5	73...83

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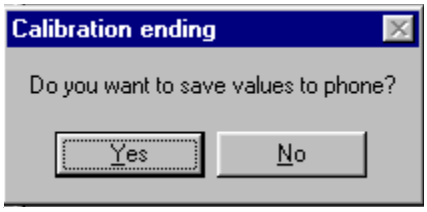
GSM1800	Typical value	Limits
RSSI2	87.5	83...93
RSSI3	99.5	94...104
RSSI4	109.5	104...114
RSSI5	119.5	114...124
RSSI6	129.5	124...134
RSSI7	139.5	134...144
RSSI8	149.5	144...152.5

Choose "Stop" to end tuning

If values shown are within limits, choose "Yes" to save values to the phone



Close the "RX – Calibration – dialog to end tuning

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RX Band Filter Response Compensation

RF generator needed.

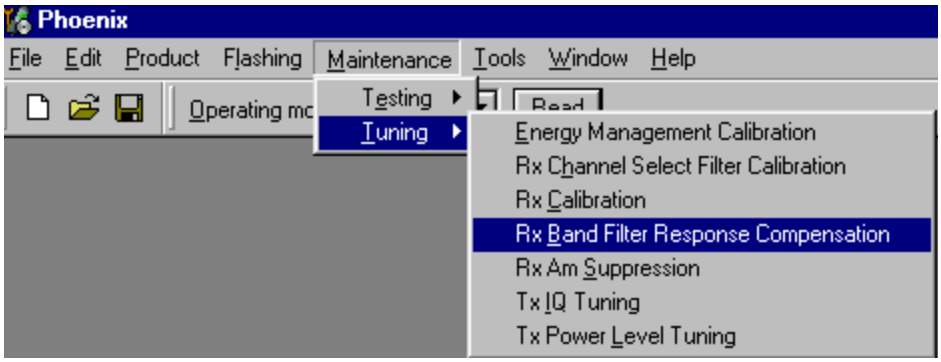
This operation must be done separately on both bands!

Start RX Calibration at EGSM (GSM900), then do RX Calibration at GSM1800 band.

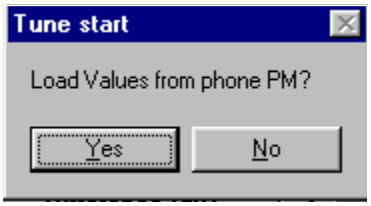
NOTE! Remember to do RX calibration before doing Rx Band Filter Response Compensation!

Remember to take jig and cable attenuations into account!

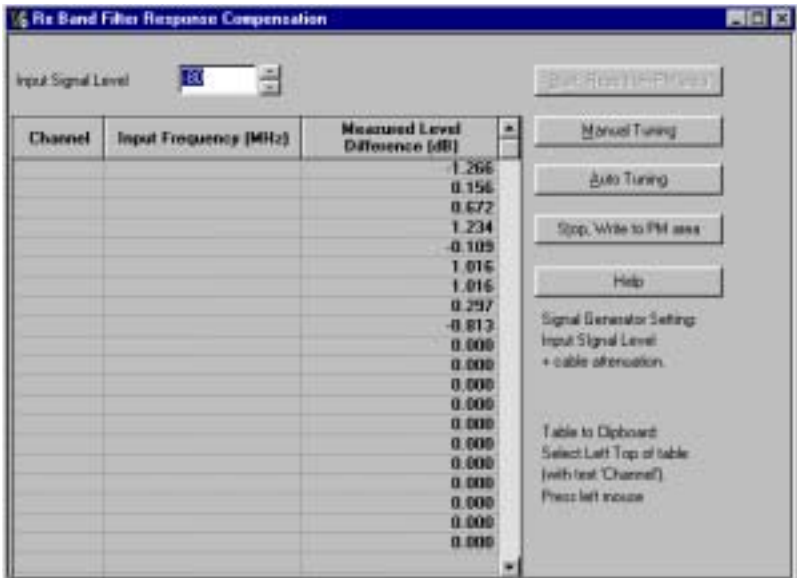
Select Maintenance => Tuning => Rx band filter response compensation



Select "Yes" to start tuning with values already saved to the phone



Select "Manual tuning"



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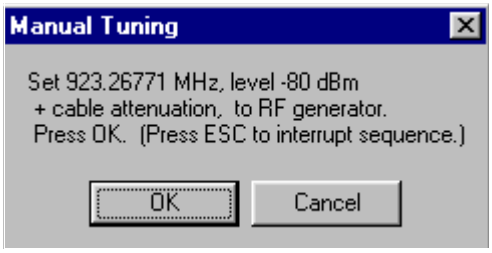
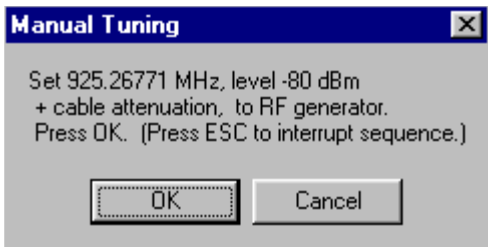
You will be asked to supply 9 different RF frequencies to the phone

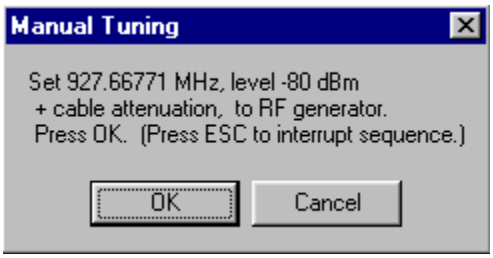
Set first required frequency and level => OK



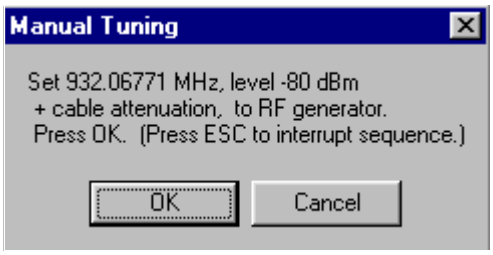
Set 2nd required frequency and level => OK



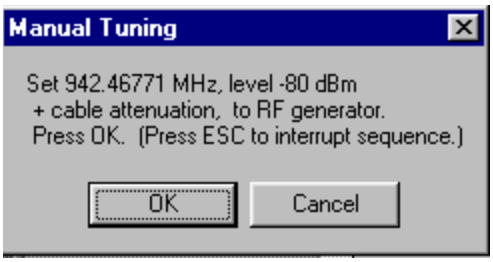
Set 3rd required frequency and level => OK



Set 4th required frequency and level => OK



Set 5th required frequency and level => OK



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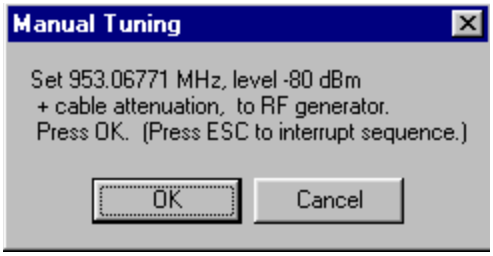
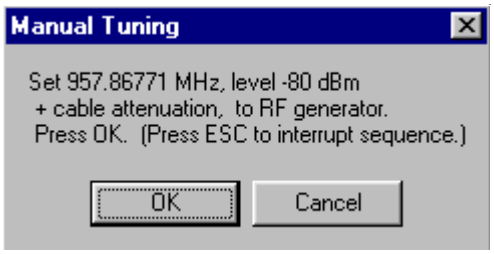
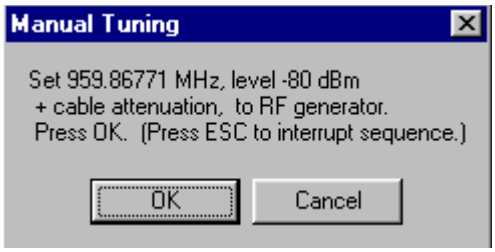
Set 6th required frequency and level => OK



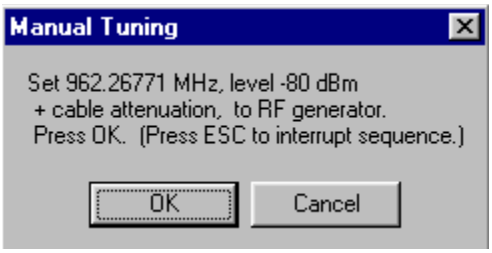
Set 7th required frequency and level => OK



Set 8th required frequency and level => OK



Set 9th required frequency and level => OK



Typical values and limits in Rx Band Filter Response Compensation EGSM900:

Channel	Input frequency (MHz)	Measured level difference (dB)	Limits (dB)
965	923.26771	-0.516	-10...+5
975	925.26771	0.875	-5...+5
987	927.66771	1.469	-5...+5

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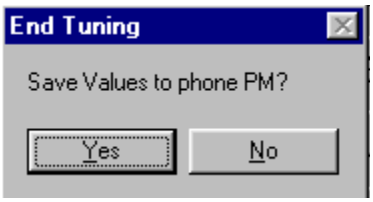
Channel	Input frequency (MHz)	Measured level difference (dB)	Limits (dB)
1009	932.06771	1.656	-5...+5
37	942.46771	-0.094	-5...+5
90	953.06771	1.781	-5...+5
114	957.86771	0.719	5...+5
124	959.86771	-0.625	-5...+5
136	962.26771	-2.141	-10...+5

Choose "Stop, write to PM area"

If values shown are within limits, choose "Yes" to save values to the phone



Continue tuning from GSM1800. Choose the correct band from the dropdown menu.

Repeat the same steps as for the EGSM900 band above

Typical values and limits in Rx Band Filter Response Compensation GSM1800:

Channel	Input frequency (MHz)	Measured level difference (dB)	Limits (dB)
497	1802.26771	-0.672	-10...+5
512	1805.26771	0.109	-5...+5
535	1809.86771	0.781	-5...+5
606	1824.06771	0.781	-5...+5
700	1842.86771	-0.266	-5...+5
791	1861.06771	0.234	-5...+5
870	1876.86771	0.563	-5...+5
885	1879.86771	-0.016	-5...+5
908	1884.46771	-2.141	-10...+5

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If values shown are within limits, save values to the phone

Close the "RX Band Filter Response Compensation" – dialog to end tuning

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RX AM Suppression

RF generator needed (AM modulation)

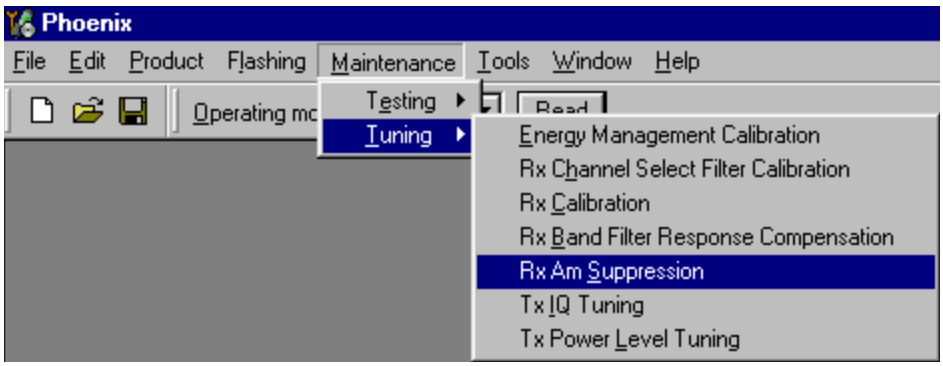
Must be done separately on both bands!

Start RX Calibration at EGSM (GSM900), then do RX Calibration at GSM1800 band.

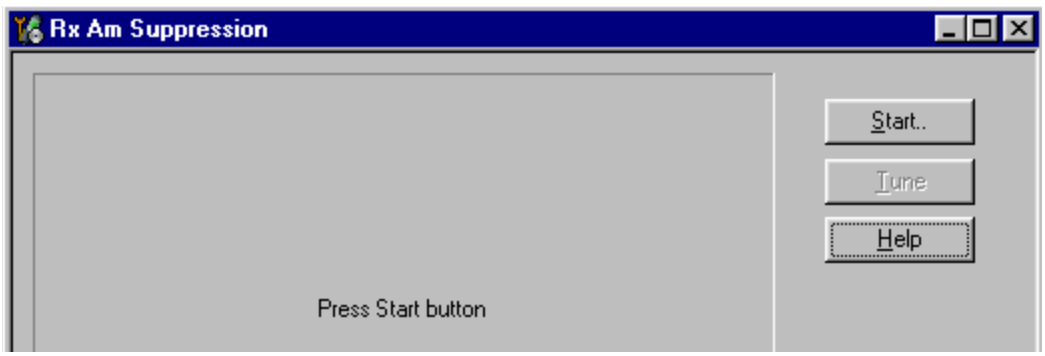
This dialog performs RX AM Suppression.

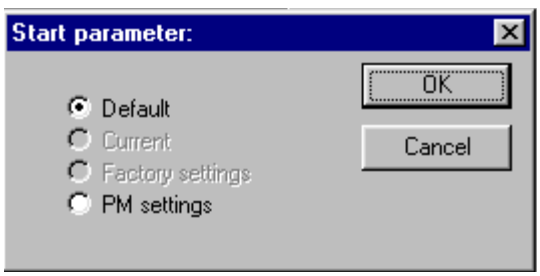
Remember to take jig and cable attenuations into account!

Select Maintenance => Tuning => Rx Am suppression



Start => Default settings => OK,





Set RF generator to state described in the left side window.

Press the "Tune" button to perform actual tuning.

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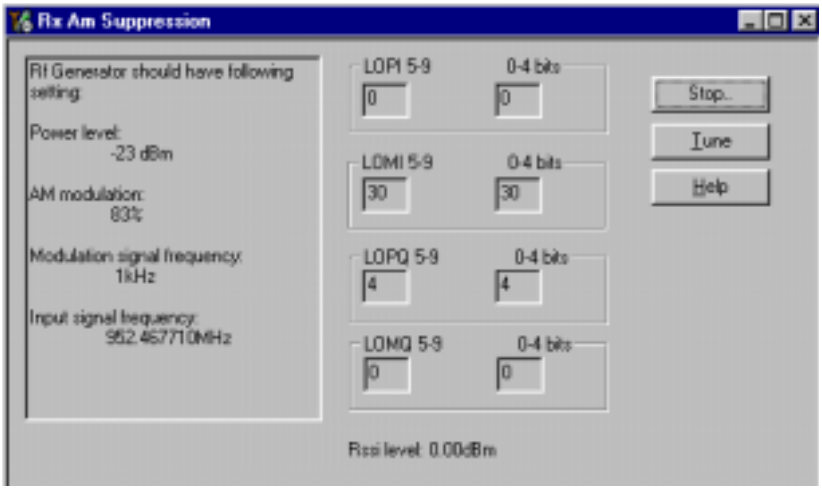
The new tuning values and Rssi dBm value are updated.

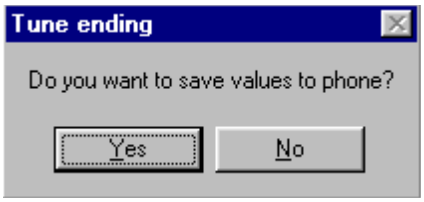


One "I" and "Q" line values should be 0, other values 0..31

RSSI level should be around -107 dBm

If values shown are within limits, Select “Stop”

choose “Yes” to save values to the phone



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Continue tuning from GSM1800. Choose the correct band from the dropdown menu.

Repeat the same steps as for the EGSM900 band

If values shown are within limits, choose "Yes" to save values to the phone

Close the "RX AM Suppression" – dialog to end tuning

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Transmitter Tunings

TX I/Q Tuning

Spectrum analyzer needed

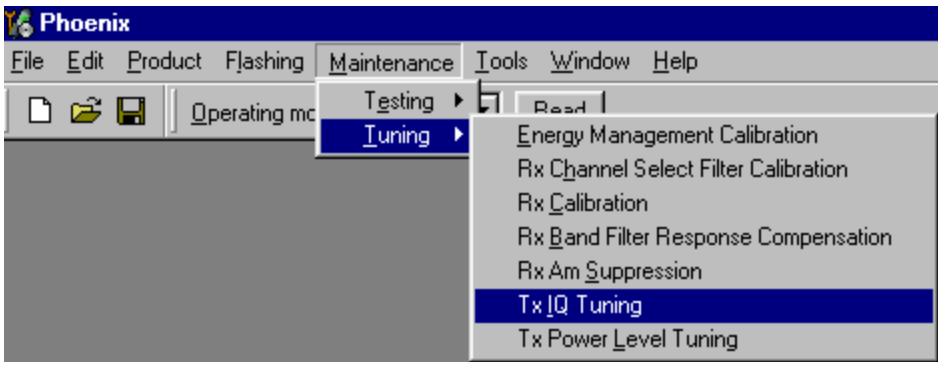
Tx IQ Tuning allows changing the Tx I DC Offset, Tx Q DC Offset, Amplitude difference and Phase difference

Must be done separately on both bands!

Start TX I/Q Tuning at EGSM (GSM900), then continue at GSM1800 band.

Remember to take jig and cable attenuations into account!

Select Maintenance => Tuning => Tx_IQTuning



Select "Load from product" => Start

The tuning is done by setting each of the sliders to desired value. The sliders can be changed only when the tuning is ongoing.

The order of tuning should be same as the order of the sliders e.g. the Tx I DC Offset is tuned first and Phase difference is tuned last.

Use <=, =>, PgUp or PgDn keys

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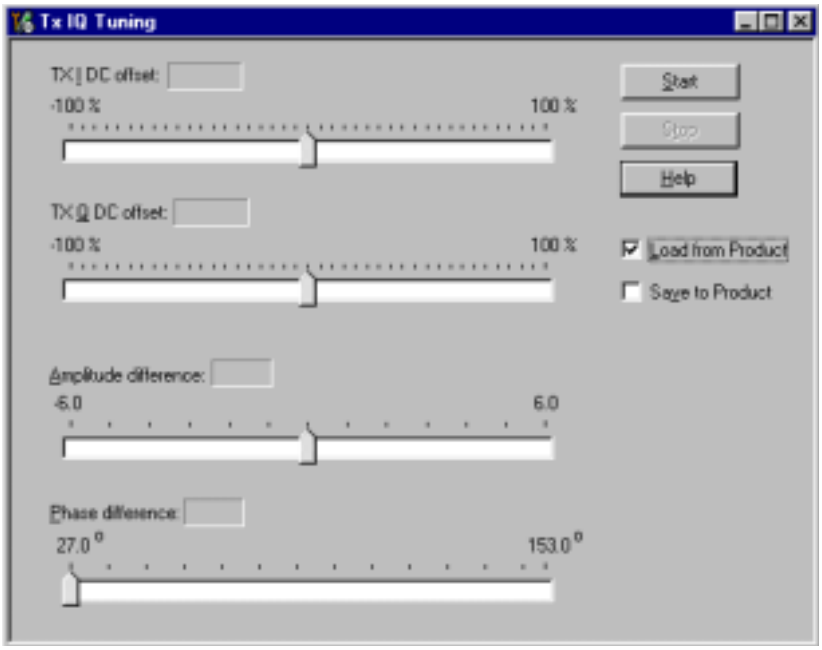

Set spectrum analyzer center frequency to 897.4 MHz, span 200kHZ, RBW and VWB 3kHz and sweep time to 2 seconds

Tune LO leak to minimum with TXI/TXQ DC offset control (**f0 on spectrum analyzer screen**)

Tune wrong sideband to minimum using Amplitude/Phase difference controls (**f0+68kHz on spectrum analyzer screen**)

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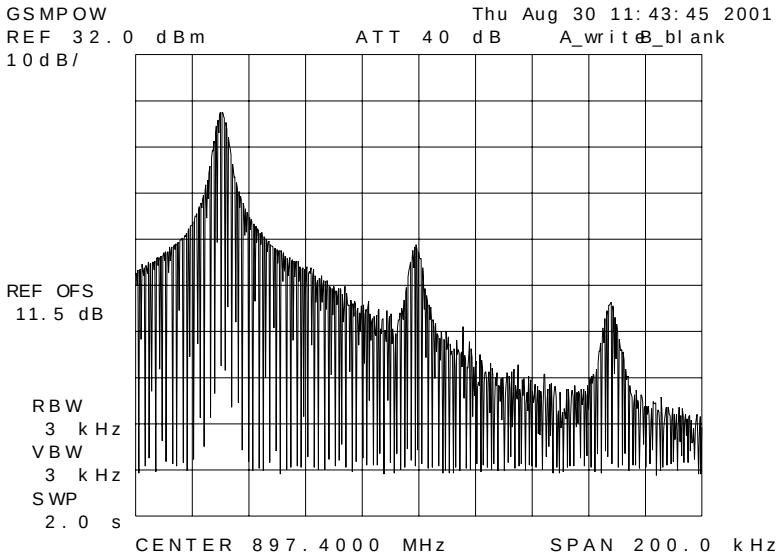

Typical TX Iq Tuning Values and tuning limits GSM 900:

I DC Offset	-2.5...+0.5	-6...+6
Q DC Offset	-6...+6	-2.5...+0.5
Amplitude difference	-0.2...+0.2	-1...+1
Phase difference	88.0°....92.0°	80°...100°

If values shown are within limits, check the "Save to product" tick box and choose “Stop”, save the new values to the product.

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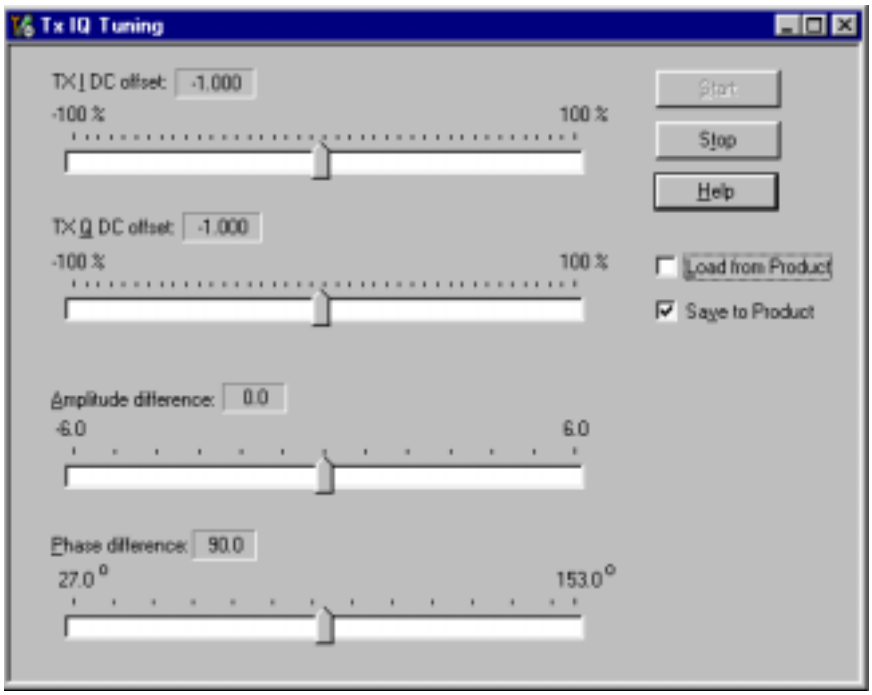
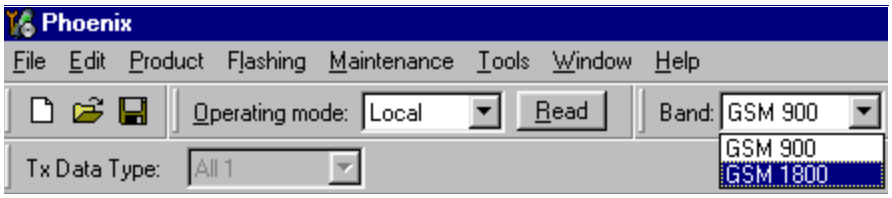


Continue tuning from GSM1800. Choose the correct band from the dropdown menu.



Repeat the same steps as for the EGSM900 band

Set spectrum analyzer center frequency to 1747.8 MHz, span 200kHZ, RBW and VWB 3kHz and sweep time to 2 seconds

Typical TX IQ Tuning Values and tuning limits GSM1800:

I DC Offset	-3.0...0.0	-6...+6
Q DC Offset	-1.5...+1.0	-6...+6
Amplitude difference	-0.5...+0.0	-1...+1
Phase difference	90.0°...97.0°	80°...100°

If values shown are within limits, check the "Save to product" tick box and choose “Stop” save the new values to the product

Close the “TX I/Q Tuning” – dialog to end tuning

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TX Power Level Tuning

Power Meter (or Spectrum analyzer) needed

With Tx Power Level Tuning, the coefficients are adjusted for each power level

Must be done separately on both bands!

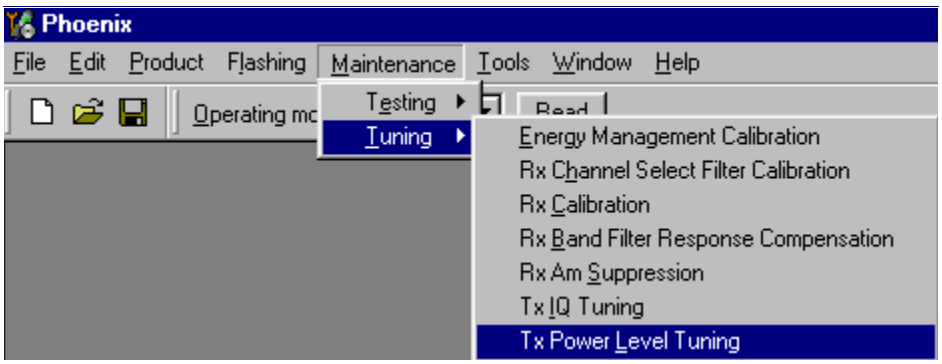
Start Power Level tuning at EGSM (GSM900), then continue at GSM1800 band.

In EGSM900 band The power level tuning is made for both high and low PA Modes

In GSM1800 band only for high PA mode.

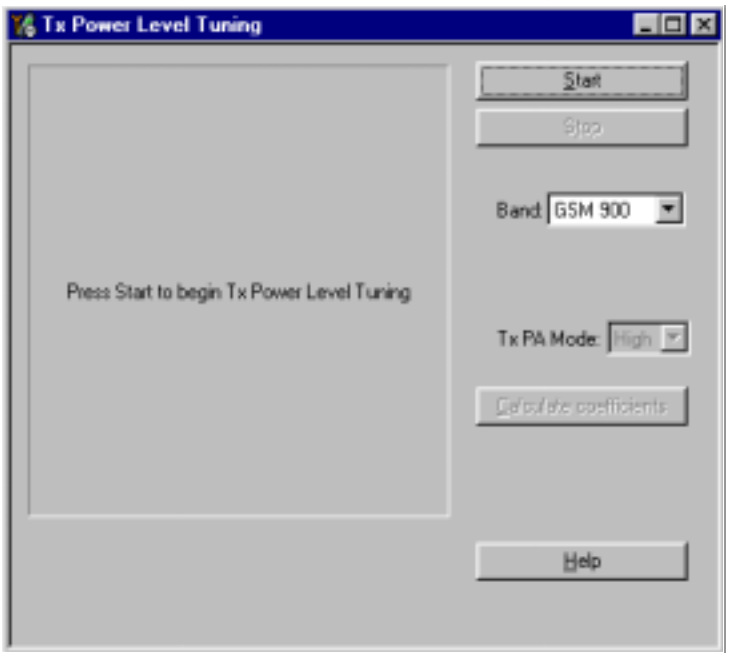
Maintenance => Tuning => Tx power level tuning

Remember to take jig and cable attenuations into account!



Select "Start" => "Load from: Permanent memory" => "OK "

Note that TX PA mode is "High" at this point.



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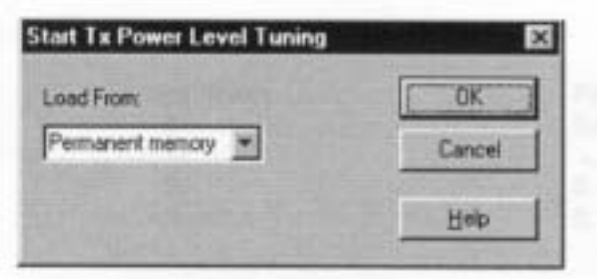


The coefficient table lists the power level, coefficient, target dBm and DAC value for each power level.

The tuned power level can be chosen by using up and down arrows or mouse.

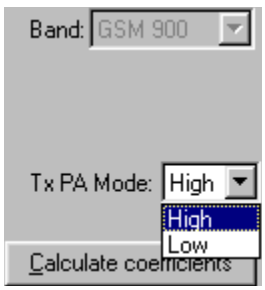
The current power level is shown with inverse colors.

The tuning value can be adjusted with "-"and "+" keys

Tune base level and power levels 19,15 and 5 to target level

Press "Calculate coefficients"

Change TxPA Mode to "Low"from the drop down menu. When the PA Mode is changed, the previous values are saved in memory and the ones for new mode are shown



Tune power levels 19, 15 and 7 (Levels 5 & 6 are not used, base level tuning not needed)

Press "Calculate coefficients"

Typical values: EGSM900

Power level	PA high mode	PA low mode
5	0.650...0.710	-
7	-	0.500...0.540
15	0.190...0.210	0.190...0.210
19	0.160...0.170	0.160...0.170
Base	0.140...0.150	0.140...0.150

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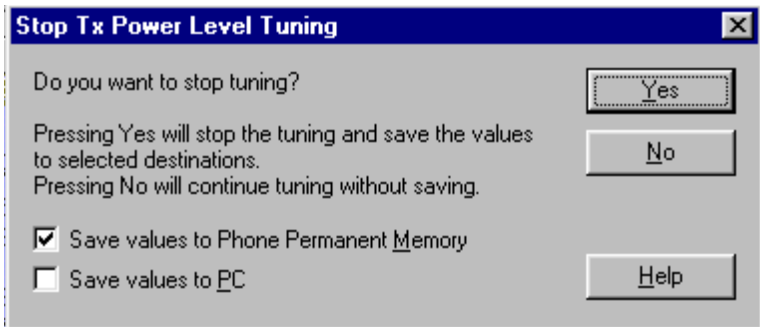
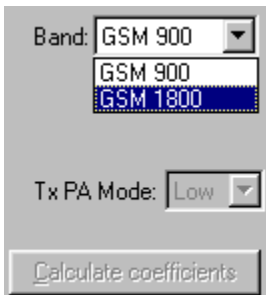
If the values shown are within limits select "Stop" and check "Save values to phone permanent memory"

Select "Yes" to save values to phone

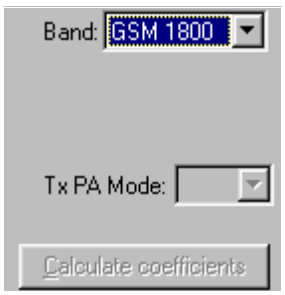

Stop Tx Power Level Tuning
Do you want to stop tuning?
Yes
Pressing Yes will stop the tuning and save the values to selected destinations.
Pressing No will continue tuning without saving.
No
Save values to Phone Permanent Memory
Save values to PC
Help

Continue tuning from GSM1800. Choose the correct band from the dropdown menu.



Repeat the same steps as for the EGSM900 band above

Note that In GSM1800 band PA mode can not be changed because tuning is only made in "High" mode



Typical values: GSM1800

Power level	PA high mode
0	0.650...0.710
11	-
15	0.190...0.210
Base	0.140...0.150

If values shown are within limits select "Stop" and check "Save values to phone perma-

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nent memory".

Select "Yes" to save values to phone

Close the "TX Power Level Tuning" – dialog to end tuning

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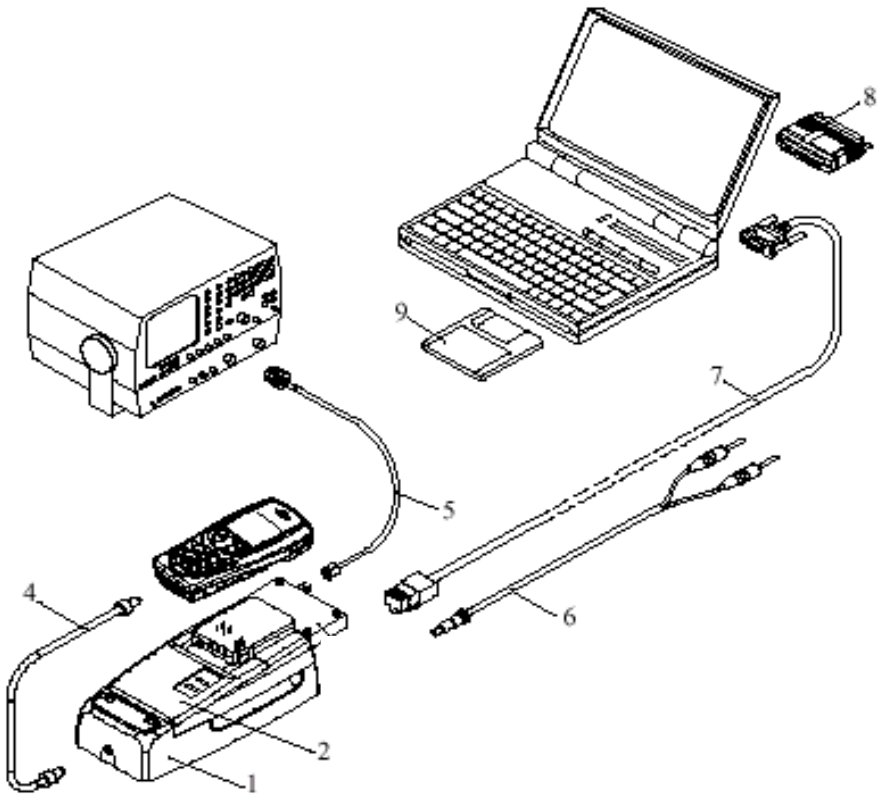
Service Tool Concept For Baseband Tunings

EM calibrations should be carried out in JBV-1 Docking Station

Coupler can only be used for testing, NOT for tuning!

Power to JBV-1 should be supplied from an external DC power supply, not FPS-8 prommer

Maximum input voltage is 16 V DC, nominal input for tunings is +12V DC



Item	Service Accessory	Accessory type	Product code
1	Docking Station	JBV-1	0770298
2	Docking Station adapter	MJF-3-	0775266
4	DC-DC Cable	SCB-3	0730114
5	RF antenna cable	XRF-1	0730085
6	DC power cable	PCS-1	0730012
7	service MBUS cable	DAU-9S	0730108
8	Software protection key	PKD-1	0750018
9	Phoenix service SW		8408031

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Item	Service Accessory	Accessory type	Product code
9	Phoenix service SW	CD-ROM	0775011
9	Flash SW data		8408167
9	Flash SW data	CD-ROM	0775312

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Baseband Tunings

Energy Management Tuning

External power supply needed

EM Calibration is used for calibrating Battery and Charger settings of the phone.

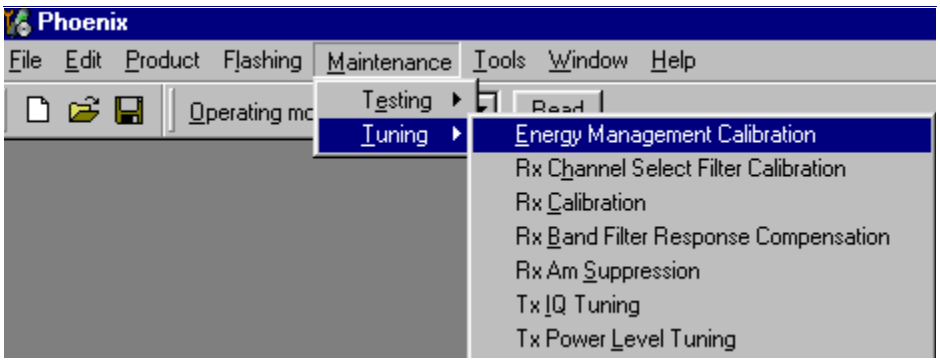
Preparation for EM Calibration:

- Connect DC Cable SCB-3 between JBV-1 and Vin of Phone for Charger calibration.

- Connect 12...15 V from Power Supply to JBV-1.

- NOTE! Check that connection is F-BUS (doesn't work with M-BUS!).

Select Maintenance => Tuning => Energy Management Calibration



Energy Management values to be calibrated are checked

Select "Read from Phone" to show current values in phone memory and to check that the communication with phone works

Select "Calibrate" to run selected calibrations

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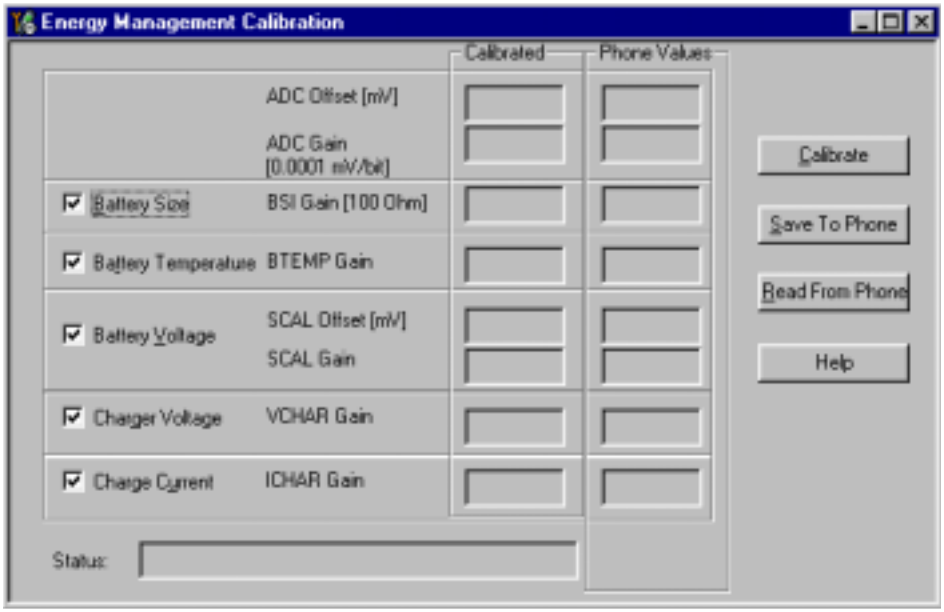

Limits for Energy Management Calibration:

	Min.	Max
ADC gain	25400	29000
DC offset	-100	100
BSI gain	860	1180
BTEMP gain	1980	2280
VBAT gain	10000	11000
VBAT offset	2300	2700
VCHAR	58500	62000
ICHAR	3850	4650

If values shown are within limits select "Save To Phone" to save values to phone.

NOTE! Only values of checked tunings (Battery size, Battery Temperature etc...) will be saved.

Close the "Energy Management Calibration" – dialog to end tuning

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